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ABSTRACT

The research on which this report is based has aimed at an assessment of the nature of reform of education content and associated processes in developed Western nations as well as in the Arab world. Chapter 1 is designed to clarify the concept of "education content" and to specify processes involved in "content reform," as these terms are used and understood in the educational literature of the modern world. Chapter 2 explores the relevance these concepts and processes have had in the development of education in several Western nations. Chapter 3 reviews the current status of education content change efforts in the Arab world, and Chapter 4 indicates some directions which future reform may take. (JD)

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INNOVATION IN TEACHER EDUCATION: THE CHALLENGE TO PREPARE TEACHERS AS AGENTS OF CHANGE

TAHER A. RAZIK

UNESCO: REGIONAL OFFICE FOR EDUCATION IN THE ARAB COUNTRIES

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PREFACE

The urgency of the task of creating new educational content institutions and services and/or reforming and revitalizing those that already exist has become a matter of mounting concern in every nation on earth. In many industrialized countries, student achievement scores are on a marked down-hill slide and student absenteeism rates are staggering. The general public -- including the educators, parents, and even the students themselves -- is convinced that education no longer means what it used to mean, nor confers the advantages that it used to confer.

The Third World nations have other educational dilemmas, but with many of the same effects. Deeply ingrained cultural traditions which resist the dramatic race toward modernization, whether that modernization comes from Western or Eastern industrial sources, have trapped developing nations in a science-fiction sort of time warp. Splendid, or in some instances, merely comfortable and familiar, pasts are in full-scale confrontation with unforeseeable and possibly awesome futures, and no one seems quite certain what can or should be salvaged from history to enrich the present and to prepare Third World peoples for life in the 21st Century.

There is no confusion about the need to eradicate illiteracy, for every nation is now aware that popular ignorance is an insufferable detriment to any society. And despite the fear and distrust of modern technology, more evident in some nations than in others, there is grudging acceptance of the fact that it is here to stay and that it must be understood if it is to be controlled for human benefit.

The pressures on educational systems in developing nations are therefore three-fold: (1) the pressure to abate the effects of vast differentials in intellectual development, career preparation, and problem-solving

capabilities that exist among and within nations, (2) the pressure to preserve cultural integrity and to reserve the rights of nations to take separate and individual actions, and (3) the pressure to balance social and technological developments with humanistic and scientific enterprises in the pursuit of personal, national, and international welfare.

The countries of the Third World are conscious of the fact that existing models of education imported from modern industrial nations do not perfectly meet the needs either of their own people or of the people for whom they were created. They are aware that these models have inherent biases which may even be to some extent detrimental to developing nations. Nevertheless, the need for rapid progress in schooling is so great that adoption and adaptation of these models is viewed not only as acceptable, but also as imperative. In their encounter with the new age through modern communications; tourism; the impact of multinational corporations; and international educational, cultural, economic and scientific organizations, statesmen and educators of developing nations see the necessity to change their authoritarian systems of schooling and their preferential education of the elite. But perceiving the necessity for change and developing the mechanisms to accomplish it are not automatically synchronous. Unfortunately, planners in every country have the tendency to concentrate on *products* of change, rather than on the mechanisms, strategies and *processes* which work to facilitate or retard the desired outcomes of planning.

The research on which this report is based has aimed at an assessment of the nature of the reform of education content and associated processes in developed Western nations as well as in republics, states and kingdoms of the Arab world. While nations of the West are discovering that freedom of choice in education sometimes leads to the irresponsible "choice" of

being absent from school and delinquent in learning tasks, Arab countries are struggling with the realization that authoritarian control also does not guarantee attendance and is not necessarily a successful motivator of students. In fact, school regimentation often seems to retard the development of social responsibility and psychological maturity among Arab students. Thus it is apparent that dogmas of either extreme do not have the capability of resolving the problems of modern education.

Somehow, the planners for change in education content in industrial and developing nations must meet the challenge of the new era with imagination and constant willingness to explore new avenues of theory and research. They are beginning to understand that students themselves often have the best insights as to what must be changed, and how. But students supply only one perspective, and what is needed are the perspectives of all segments of the society or societies served by the school systems. Even the least educated parents, when conscientiously invited to express their opinions, can contribute valuable ideas about schooling.

It would appear, however, that grass roots participation is not sufficient to guide the reform process. It is recognized that there is great need, in all of the countries surveyed, for well-trained and interdependently organized content reform specialists at national, regional and local levels of the educational systems. An example of this awareness is the recent formation of an Innovation Network under the auspices of the Regional Office for Education in The Arab Countries, a unit especially designed to facilitate the exchange of information and the identification and technical distribution of skills which must be available to nations which are serious about the reform of educational content and the implementation of new curricular elements and processes. While there are of

course unique circumstances in each of the member countries, it is also clearly the case that many of the problems are shared problems, and that their solution may yield more readily to a cooperative approach.

Sharing ideas strengthens the conceptual and skill competencies of all the sharers. Multi-directional and multi-level sharing of information is presented here as one of the most critical and most often neglected aspects of the process of reform. It qualifies all the results of planning, and determines to a very large extent whether educational resources are well or poorly used.

From the perspective of communication in education, it becomes especially important to ask the question whether selective withholding of information, such as often occurs in authoritarian educational structures, does not itself significantly impede the intellectual and social development of a nation's children. What information is sought from the students themselves and how it is used is an issue of great importance in every school system, though this fact is not often clearly understood.

The use of formative techniques for evaluation of students, now beginning to come to the fore in some Arab countries, is one attempt to come to grips with the new image of the student as active partner with the teacher in his own learning activities. It provides a means for gathering data about the student at frequent intervals and for discussing this data with him. It also provides valuable information about needs for adjusting the educational content and process to meet individual needs.

Formative evaluation of the process of educational innovation itself is also a new concept in most developing nations, and for the most part, curriculum specialists have not been trained to analyze and adjust continuously the critical events in their own content reform procedures.

In fact, there is often difficulty in conceptualizing content reform as the complex process it has actually become. Too often, planners believe that textbook revision is all that is required in order to change the content of education.

Chapter 1 is designed to clarify the concept of "education content" and to specify some of the processes which are involved in "content reform", as these terms are currently used and understood in the educational literature of the modern world. Chapter 2 explores the relevance these concepts and processes have had in the development of education in several Western nations. Chapter 3 reviews the current status of education content change efforts in the Arab world, and Chapter 4 indicates some directions which future reform may take.

Originally printed in two exhaustive research monographs*, the content of this report as it now appears has undergone massive editing. In this process, most of the details of the research procedure have been eliminated, and item-by-item research findings have been collapsed into pertinent statements about these findings. The intention has been to create a compact resource which may prove helpful to the people who are charged with reforming the educational systems and vitalizing the learning experiences of millions of Arabs, young and old.

But this ought not to be construed as a "regional" report only, for the issues addressed here are generic to educational change in every part of the world. Some of the historical and analytical perspectives, model designs, and process descriptions included here must surely be applicable to some extent in developing countries outside the Arab bloc. Other researchers in comparative education may also find this report a useful addition to their reference libraries.

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* see references

Chapter 1

THE CONCEPT OF EDUCATION CONTENT AND ITS REFORM

Although the immediate reasons for educational reform in any particular national context may vary, there are two basic issues which seem to be embedded in every reform effort: (1) the necessity to raise the overall quality of education and to continue to widen access to educational opportunities against a background of economic uncertainty and social structural change, and (2) the struggle to reinforce the role of education in preparing the young for working life and facilitating their entry into employment.

In the case of many developed or industrialized nations, widened access to education often means the introduction of special strategies for serving cultural or other minority populations. Frequently, it also involves a conscious, planned effort to address the interests and needs of adult learners. These adults may be in the process of changing careers, or they may simply wish to enrich their lives by means of further education. In such countries, the numbers of adults enrolled in various kinds of short-term as well as long-term educational programs are steadily increasing.

However, for a vast majority of developing nations, including countries in the Arab world, the available educational resources must be deployed differently, to solve problems which are much more basic and which are concentrated much more prominently upon youth education. It is clear that large numbers of educated sons and daughters are badly and immediately needed in the changing economies and social structures of such countries, not only to assume leadership roles in government, business, and education, but also to supply the demands for skilled laborers and craftsmen. In the contexts of developing countries, then, it should be no surprise that educational

priorities are often very unsettled. Educators are faced with conflicting demands and pressures that change almost overnight, as one new educational crisis follows closely on the heels of another, or as several occur simultaneously.

Yet, despite the difficulties, there are many successes to point to. In Arab states (as in other developing nations), a considerable expansion of education has occurred since the early sixties, and the general level of education in each state has improved. Inequalities of educational opportunity have been markedly reduced. More young people have access to education now than at any other time in Arab cultural history.

The Development of Pluralistic Aims and the Impact of Financial Constraints

Nevertheless, it must be acknowledged that in many Arab countries there are disadvantaged groups which are still not able to benefit fully from the education offered. Authorities are now faced with the major task of providing such groups with education which is better adapted to their needs.

Fortunately there is general awareness among these authorities that adaptive change must occur in existing educational systems. This awareness is most frequently expressed in terms of various demands for reform of educational content. To some extent, there is also recognition that content reform must be accompanied by change in the educational processes by means of which this new content is to be conveyed. But admitting the need for change and committing the resources and energy necessary to plan and implement change are not the same thing; commitment and decisiveness often lag far behind agreement-in-principle.

One of the reasons for this lag is, of course, the fierce competition in developing nations for available economic and human resources. For many

states, neither money nor trained personnel are adequate to meet all of the needs of the developing society. Even in the wealthier states, there is growing concern about the very rapid increase of total expenditures for social services, including education. As a result of this situation, Arab governments have become increasingly determined to control both the rate of expansion and the directions of new educational development. What must follow from real or imposed financial limitations is that educators must (1) reassess and reorder priorities, and (2) respond much more specifically to changes in the labor market. While the first thrust of educational development was to accomodate enormous influxes of students as rapidly as possible, the new thrust is to provide adaptive programs and strategies for getting the most benefit out of available educational dollars. What is at stake is helping young people to acquire a wider range of employable skills and competencies, and also helping individual states to reach goals across a broader spectrum of internal and external considerations.

The obvious conclusion is that educational content must be reformed to serve pluralistic aims, and ought not to be reshaped solely in reaction to short-term, external factors. Educational systems must somehow develop the capacity to respond imaginatively and flexibly to emerging social and economic requirements of the societies of which they are a part. Further, they must create this responsive capacity within the framework of increasingly tightened financial constraints.

Financial incentives are not, however, the only impetus behind the increasing efforts of Arab educators and government officials to plan cooperatively. Social barriers are falling almost as dramatically and frequently as economic barriers, affecting not only relationships within a given country but also those between countries in the Arab bloc. Significant effects

are seen also in internatonal relationships, as communication, travel, trade, and educational exchanges of various kinds proceed at a phenomenal rate. It seems increasingly important, in this context, for Arab youth to have access to education and training experience in countries other than their own. But it is all too often the case that their basic education has not kept pace with educational developments in other countries. Consequently, when they began advanced study abroad, they find themselves losing valuable time and money as they struggle to make up the substantial differences in required content knowledge and to accomodate to modern pedagogical methods.

The Need for Cooperative, Planned Systems for Education Content Reform

Against this background, the reform of educational content in Arab school systems seems imperative. It also seems to be a problem of such major proportions that no single Arab state or nation is likely to solve it by working entirely on its own. The process of rapid Arab educational adaptation, if it is actually to occur, demands a pooling of economic and human resources and a massive, courageous, cooperative assault upon shared and persistent problems. At the same time that cooperative participation in program planning and reform of educational content is applied to problem solutions, it can also be applied to the safe-guarding of the traditional values of each participant state.

It has been the experience of developed nations that there comes a time in the course of educational development when matters can no longer be left sensibly to chance or to unplanned evolution. With educational issues of great complexity competing for attention, and with educational system variables increasing astronomically as new demands are encountered and new students

are enrolled to learn to perform new roles in life, patched-up curricula and half-hearted planning no longer suffice. The alternative is to face the complex issues and variables squarely, and to recognize that there are no easy formulae, and no reasonable substitute for the very hard work of cooperative, scientific planning. What is involved in modern educational development is, on the one hand, the restructuring of educational systems to make large-scale changes possible and, on the other, the reform of content so that it is better able to foster intellectual development and the acquisition of occupational skills. Greater inventiveness and greater flexibility of behavior and judgment must result from a modern education, and these characteristics of the educated mind must finally be disseminated throughout the populations of developing countries.

Concern for "Quality of Life" and Employment Issues in Education

There are other important perspectives to consider. For example, it is recognized that in all of the developing countries in the Arab world, there exists a common desire to improve the quality of life for all, and to do so specifically by increasing the sense of individual responsibility of each citizen, in all walks of life. In order to advance these goals, an intensive effort must be made to assist disadvantaged social groups and to encourage individuals to participate in life-long learning. To a very notable extent, the successful education of the youth of any culture depends upon the willingness of their elders to embark upon or to renew their own education. There are, of course, many ways for adults to acquire knowledge informally. But they must also be prepared to ask for and participate in more formal education and training programs, as needed or desired. Improving the quality of life for all does not mean leaving all of the learning for young people to

do or leaving all of the problem-solving to the next generation.

Second, it is admitted that there is persistent high unemployment in the Arab Countries area as a whole, and this is a situation which weighs with particular severity upon the young people. A vigorous response from education is needed, if the problem is to be alleviated. Education content reform must be undertaken in collaboration with other social and economic agencies, so as to insure the fullest development and use of human resources.

These specific perspectives are, of course, completely in accord with the fundamental purposes of education, which must be upheld and continuously developed for the general good. These purposes are to provide all youth and adults with (1) basic knowledge and skills, together with the capacity to develop attitudes essential for their own personal development and for the successful performance of their roles as individuals, family members, workers, and citizens, (2) access to culture, which will enable them to live fuller lives in an increasingly complex and interdependent world, and (3) enhanced capacities for contributing creatively to social and economic change.

Such perspectives and purposes must be viewed realistically, with the understanding that constitutional or institutional arrangements for the pursuit of education have implications for decision-making, and that as a result, educational policies will vary from one country to another.

A Conceptual Basis and Some Action-Principles for Educational Problem-Solving

This brief resume of situational and conceptual factors found to be implicated in the educational progress of developing nations generally, and of the Arab countries specifically, is by no means exhaustive. But it should nevertheless provide pertinent background data and serve as a concept-

ual basis for looking at the educational reform process more closely. Data and concepts in this and the chapters to follow have been gathered together and refined over a period of several years of on-site study of developing educational systems in many countries. Particular attention has been paid to the processes by means of which those responsible for education make and carry out decisions of far-reaching significance.

Finally, although the studies of educational development processes on which this report is based have themselves been comprehensive, the principles derived have been very specifically considered in relation to the situations in which the developing countries of the Arab world now find themselves. This, of course, does not deny their wider applicability.

In light of these multiple perspectives, and in light of the obviously changing economic and social contexts of education, nine vital action-principles have been formulated and are presented here. They seem worthy of priority consideration from those concerned with and engaged in the process of educational reform:

(1) to develop educational standards continuously, as conceived within each country, with the object of ensuring that all young people are helped to acquire the basic competencies needed to embark successfully upon adult life;

(2) to develop schools as active communities which offer a stimulating environment, contributing to the self-reliance, sense of responsibility, and cooperative spirit of young people;

(3) to improve the professional preparation of teachers, and to encourage them -- in the context of changing needs and tasks --

to take an even more active and responsible part in the reform of content, so that the links between the school and adult life will be strengthened;

(4) to adopt positive measures which contribute to the achievement of equality between girls and boys, men and women;

(5) to adopt positive measures to enable students to profit more fully from education content and training opportunities, taking into account their special needs as appropriate;

(6) to ensure carefully that any necessary procedures related to educational choice, assessment, and certification take place in such a way and at such stages as to allow each student to develop his or her full intellectual and personal potential;

(7) to help the young to prepare more effectively for adult life and work, by reforming educational content towards the best possible balance between general and vocationally-oriented education, and to encourage the provision of opportunities for work experience during schooling;

(8) to stimulate the development of more "recurrent" educational opportunities for young people and adults, so that they may continue education at all levels after periods of work; and

(9) to facilitate the transition of young people to adult life, and in particular, to strengthen the contribution of education toward the solution of the problem of youth unemployment in cooperation with other authorities and groups concerned (including employers), so that

(a) all young people will have an opportunity to obtain a useable vocational qualification, and

(b) unemployed young people will be helped to gain access to further education and/or specific training.

Aims of Reform and Implications for Financial Support and Human Resources

These general action-principles can be easily translated into specific aims of specific educational systems. They can also serve as guidelines for comprehensive, cooperative regional and sub-regional educational planning. In either case, the pursuit of such aims will require efficient use of the resources available to the educational sector. But efficiency may not mean smaller educational budgets, for the tasks ahead are monumental. Not only must existing educational services be functionally improved, but, quite clearly, many new programs and services must be developed and integrated. It seems reasonable to expect that, for many years to come, education must be granted a very large share of the public budget.

Furthermore, it is becoming more and more obvious that every concerned citizen must be asked to play a significant part in the serious drama of educational reform. It will take the close cooperation of all those involved in education -- government authorities, school administrators, teachers, parents, and the students themselves -- to work out the tactical and substantive problems. This cannot be done effectively in isolation from the employers, community organizations and special interest groups in the society, and so representatives of such sectors must also be actively engaged in the planning, implementation, and evaluation processes. The participation of concerned persons in all walks of life must be sought and secured if a truly united effort is to be made. Opening up the planning and decision-making processes to include more of the people affected by educational systems

has proved to be a most effective way to create and sustain just, broadly-based, and dynamic educational services, and to devise workable plans for drawing upon the development potential these services represent. The building of creative societies and proper economies in Arab countries surely must depend, to a great extent, on the socially and economically responsible organization and use of schools.

Special Educational Problems Arising from Different Distributions of Population

Rural Education

Every effort should be made to locate innovative solutions to logistical and technical problems associated with the delivery of educational services in very remote areas. Such efforts should be supplemented by a broader attempt to understand the specific realities of rural education in Arab countries. It appears that these realities are in many ways distinct from, although most certainly related to, the general problem of Arab educational reform.

A variety of innovative programs, policies, and strategies should be brought to bear on the improvement of educational services to rural students during the compulsory years of their formal education. Recognizing that there are certain advantages that rural students have which are not shared by their urban peers, the object of change should not be to attempt wholesale urbanization of rural schools, but rather to equalize educational opportunities for all students regardless of their geographical location. This does not mean that every school, rural or urban, should be made identical in staff and services.

The reality is that the most modern educational technologies and the most adequately trained teaching and administrative staffs are made available

first to urban schools, for obvious logistical and preferential reasons. But innovations need not be confined to the central population areas of school systems. In an era of mass communications and rapid transportation, many variant ways can be found to bring good educational services to outlying areas -- sometimes by taking deliberate advantage of the rural settings. A number of "distance education" systems and special rural projects have already been initiated, in both developed and developing parts of the world, and the best of these have had considerable success in meeting specified educational objectives. The records of each of these continuing systems or short-term projects are open to study, and may well indicate the directions which planning for reform of education in Arab rural areas should take.

There are, of course, differences in needs from country to country, but the common factor of geographical isolation must mean that cooperative planning will be helpful, and that the solutions finally decided upon by separate Arab states will have -- and should have -- much in common. All of the potential resolutions of the problems of rural education should be aimed at (1) improving the quality of basic education and teacher support activities, (2) overcoming the unique logistical and educational problems connected with operating rural schools, and (3) equalizing educational opportunities across all parts of the school system, so that rural students may make best use of their local schools and geographical environments and achieve academic excellence on a par with urban students.

Urban Education

Concerns for urban education have come sharply into focus in recent years, as vastly increasing proportions of the population in each country have migrated to the major cities, creating many different types of urban habitat. Some of the resulting problems, which surely have implications

for education content and process reform, are the familiar ones of transport and housing difficulties, noise and air pollution, reorganization of family units, etc. These may be considered together as one category of new situations which affect education.

A number of other difficulties have arisen from a complex series of events, including the changing of international, inter-regional, and even inter-state patterns of economic activity and technological applications. The organization of production and marketing in Arab countries has changed profoundly over the last two decades, and more changes appear to be just over the horizon. The use of modern machine technology, for accomplishing both minor and major tasks, has reached astounding proportions -- often far out-pacing the educational preparation of the populace to use and maintain these new tools effectively. "Soft" or non-machine technology is making slower gains, since its use is often less obvious, but there is nevertheless an increasing interest in such non-machine technologies as modern management practices and current scientific educational planning and evaluation techniques. This second category of new situations in Arab countries is directly related to the process of modernization, whereas the first category (involving family or individual migrations) are apparent by-products of the same process.

Both categories of social, geographical, and economic change have caused much concern among educational policy-makers and those administratively responsible for the maintenance and improvement of education for all. In particular, concern has grown over the need to find the most appropriate ways of using existing schools and programs, of introducing multicultural curricula, and of allocating funds destined for the target groups most in need.

Hope for the Future, Through Widened Perspectives and Cooperative Efforts of Educators

The solutions to the massive and complex problems of devising and maintaining relevant education and responsive educational systems throughout the world must surely reside in a cooperative, multi-national approach. Such an approach must, however, take into full consideration the uniqueness of each cultural, regional, and national situation, so that in the great effort to reach the best solutions for all concerned, no population groups and no important cultural variables and values will be neglected.

The experience of Arab countries in education over the past several decades has itself provided the important foundations and the important insights which can make effective reform of education content and efficient, humane use of modern pedagogical practices possible. Out of this experience, coupled with a more thorough knowledge and understanding of what has been done in other countries, the Arab countries may forge a new chain of innovations and institute a progressive and culturally unique pattern of educational practices, policies, and programs. It is an exciting prospect. The sobering truth is, however, that whatever emerges that is unique, must not violate the common principles of education which have been found scientifically to hold true for all populations of every cultural bias and historical root.

It is also true that no single nation, of any size or composition, can lay claim to having all of the answers to educational problems in this complex modern world. There is plenty of room for new ideas, and the processes and products of educational reform everywhere in the world are increasingly coming under the scrutiny of serious - minded educators. There is a constant search for better ways to achieve an increasing

number of objectives in education. Certainly the Arab countries have the potential to make many contributions in this regard in the future.

For the immediate present, it is most hopeful that separate Arab governments and administrators of public educational policy are moving more and more confidently into the arena of cooperative planning and the undertaking of joint projects. This movement will bring together the promising practices and policy initiatives from a number of different states and countries, helping to clarify and vitalize the role of education in the development of local communities.

The specific populations which will benefit most from these combined efforts are those located in isolated rural areas and those packed into major metropolitan zones -- those who suffer most from poor access to cultural and social activities which normally serve to enhance and support established educational processes. Reform of education content should be targeted to help these groups, but this does not mean that other groups now benefitting significantly from existing schools should be neglected. The planning, implementation, and evaluation activity should be comprehensive and integrative, overlooking no aspects of the prevailing educational situations in each country.

This report is designed to assist Arab educators, and perhaps educators in other developing nations as well, to gain a wider grasp of all of the complex issues found to be involved in modern educational reform. To this end, the next two chapters have been devoted to summaries of the contexts, contents, and processes involved in (1) a number of industrialized Western nations, and (2) six countries in the Arab world, selected as representative of various regional differences and as having development projects of major proportions already underway. From these two sources and from

subsequent conferences, consultations and teaching experiences of the authors in Arabic-speaking countries, conclusions are drawn and proposals are made for future action. The substance of these conclusions and inferences will be found in Chapter 4.

Two of the most consistently noted problems is the difficulty of introducing large scale educational innovations, as well as the lack of coherent planning for the introduction of innovations on a smaller scale or in successive stages. The development planning process in most nations, developed or otherwise, apparently leaves much to be desired in terms of conceptualizing built-in change mechanisms which can be activated to encourage continuous research and revision of curriculum. It also leaves much to be desired in terms of effective involvement and utilization of different levels and different kinds of educational personnel. Further, as it appears from the surveys, no country in the world is fully satisfied that its content reformers are adequately trained or available in sufficiently large numbers to do all the restructuring and rethinking that needs to be done. These findings are not unexpected, but they do serve to locate more precisely what appear to be the most significant gaps between theory and practice.

Chapter 2

THE REFORM OF EDUCATION CONTENT: THE EXPERIENCE OF SOME DEVELOPED COUNTRIES

As might be expected from their common connections with the philosophical traditions and industrial developments of Western civilization, the countries of Europe and North America which were surveyed for this report have many identical concerns in education and must take into account many of the same variables. What is perhaps surprising is that, in the context of all these commonalities there should appear such marked differences in approaches to and applications of education content reform. Obviously, both the similarities and differences are important bases for understanding the processes of educational and social change in developed countries.

The Trend Toward Blending of Centralization and Decentralization Structures and Philosophies

Discussions of centralization and decentralization in education seem always to contain the underlying social-political-philosophical issue of authoritarian versus democratic societies and institutions, and their effects respectively on the people who live, work and go to school in them. It is recognized that where the tradition tends to be authoritarian and the school system relatively conservative, special problems in the introduction of innovations arise. But centralization is not irrevokably linked to authoritarianism. Nor is decentralization automatically a democratic process. It probably makes most sense to end arguments over whether centralization or decentralization is better, and to begin consciously to use both modes. The question then becomes a matter of strategy, and each country must decide for itself which aspects of schooling are best managed at central, regional,

or local levels.

The trend in most of the countries is definitely toward decentralization as outlying areas and communities begin to demand a stronger voice and greater powers of decision over what goes on in their schools.

The Trend Toward Development of Comprehensive Schools

As free, compulsory public education has become increasingly the rule rather than the exception in developed nations, schools have necessarily had to accomodate to wider individual differences among students. At the same time, public schools have been required to be more strictly accountable for their "products." This is to say that modern societies demand not only a demonstrably higher quality of general education outcomes, but also a broader range of academic and job-related skill training options which students may select.

The quality of education is naturally interactive with, and to some extent dependent on, the individual abilities which students have. It is obviously related also to the quality of instruction and to the effectiveness of the educational materials used.

The range of educational options made available is likewise influenced by a number of factors. These fall roughly into two categories: (1) interest and (2) economics. In the first instance, a number of interests are represented by various pressure groups in the society, including every imaginable sort of preference and bias as to what should be taught and learned. In the second instance, there seem to be economic supports in every society which favor some skills and some subject matters over others at different moments in time, so that school systems often become prey to laws of job market supply and demand or other forms of economic regulation. The two categories of influences combined tend at first

to lead to a rapid proliferation of school subjects and laboratory or work experiences, and later to a more integrative, comprehensive design of basic education and training in theoretical concepts and practical skill development. Because the comprehensive design must be responsive to such a broad diversification of interests and economic requirements as to stagger the mind, the emphasis shifts away from specific disciplines toward knowledge and skill acquisitions that are more generic and hence more transferrable across different occupations.

The movement toward comprehensive schools has caused some citizens in countries affected to question the quality of education resulting. Educators themselves are concerned with "quality" on a much broader scale, for academic scholarship alone is no longer viewed as an acceptable preparation of students for adult life. Most education content reformers are deeply concerned to provide such learning opportunities as are likely to extend vocational and career choices for school-age citizens. Moreover, they are almost equally concerned to provide further and higher education for adults.

Equalization of opportunity for citizens at all socio-economic and age levels is a significant trend in all nations, though it is far more advanced at this hour in some countries than in others. Comprehensive approaches to schooling have developed because, at least thus far, they have seemed to offer the best hope for resolution of the conflicting social, political and economic demands on education.

The Trend Toward More Active Participation of Many Public and Private Constituencies in Educational Planning and Research

Though a very perceptible trend toward democratization of education content and process reform activities has developed, most of the nations surveyed indicate that wide-spread public participation is still more of a determined goal than a reality. Students, who are most affected by

educational decisions, still have very little influence and are rarely involved in planning or evaluating their own learning experiences. This is especially disturbing in light of the accumulating research evidence that older students particularly have a very accurate sense of what is valuable to them in education and what is not.

Teachers also have limited decision-making powers, except in the United States and England, and even in these nations teacher decision-making is perceived to be largely confined to individual classrooms. In a few nations (e.g., Sweden) teachers may serve directly as advisors to central decision-makers. It should be noted that, even though teachers in these three countries exercise most of their planning and evaluating powers in the classroom context, they are typically furnished only with broad curriculum objectives and guidelines, and therefore have a great deal of autonomy in selecting materials, determining the order and importance of suggested units, and devising innovative ways to engage the students in the learning process.

Citizens who are not school personnel have even more limited roles in decision-making, though they elect local school boards in the U.S.A. and may in some nations help to specify work-related educational practices through participation on advisory councils or boards. The two kinds of interest groups most often represented on these joint, typically high-level planning boards are professionals (such as lawyers and doctors) and industrialists who are concerned pre-eminently with the development of skilled manpower and middle management personnel. The vast majority of private citizens -- parents, small businessmen, day laborers, etc. -- tend to be under-represented in the participation structures, although they, like the students, are intimately concerned with and affected by what happens in evolving educational systems.

Legislative, Financial, Training, and Research Supports for Education Content Reform

Though some countries are still counting on needed educational reform through national legislation -- largely to enact supportive equal opportunity and power decentralization measures -- a majority have the needed laws for the democratization and planned expansion of education already in place. Where legislative provisions have been adequately made, the remaining problem is to implement these provisions successfully.

Implementation of educational reform is a process which recognizably involves politics, financial allocations, development of human and material resources, and a number of other variables which are handled in slightly different ways by different countries. In general, educational policy is politically decided (often under heavy influence from various special interest groups) and educational funding is "from the top down," i.e., from national governments. The U.S.A. is a notable exception, with its bases of local taxation to provide at least half of the financial support for local schools.

Sweden distributes educational funding responsibilities between national sources and local municipalities. England and Wales pay education expenses out of a mix of national government, local Education Authorities, and private sources.

National expenditures for education in each of the 15 countries surveyed are fairly high, but expenditures set aside specifically for education content reform efforts are generally estimated to be rather low. Most development projects involve a combination of national, regional, and local resources. Successive revisions are not substantially provided for, except where the reform is on a national scale (as in Sweden), and even in such cases, major review and revision is attached to specified time intervals

which are five to ten years apart. There seem to be varying perceptions within each country as to whether reform is proceeding too rapidly or too slowly. Whatever the case, there is always a time lag between planning and implementation except where action-research methodologies are used (as in some English and U.S. projects).

Even the best laid plans turn out to be extremely difficult to implement unless the support of local citizens, teachers, and students have been won. There are disagreements as to how this support can be obtained, but greater participation in decision-making by these local groups seems to be one important key. Some survey respondents suggested that such participation must not only be planned for, but carefully timed. At whatever levels the planning occurs, it is in single schools or single classrooms that the success of the planning is tested.

Well-funded content reform projects may provide pay, or release time, or other incentives to encourage teacher participation. In general, teachers (as well as many administrators) are not felt to be sufficiently trained during their pre-service experience, and must be given additional training if they are to participate effectively in educational development work. It is worth noting in counterpoint, however, that increasing numbers of teachers are vitally interested in such work and are actively educating themselves to perform new roles in the planning, initiating and following-through of educational innovations.

Research is either of the "action" type (occurring as an on-going, interactive part of day-to-day planning and implementation of new curricula) or of the product type (assessing the final outcomes of change). The first type is apparently fairly rare, but is considered exceptionally effective when utilized. The latter type is divided into (1) basic or fundamental research aspects and (2) aspects of application. Both basic and applied

research are perceived as not sufficiently linked to the process of content reform. There is comparatively little use of "outside" researchers who have been unrelated to the development phase of the reform. This means, of course, that most projects are evaluated -- if at all -- by the same people who designed them. Such internal evaluation has on the one hand the advantage of consistency, and on the other hand, the disadvantage of preserving or camouflaging consistent errors or biases. These errors may occur in original assumptions, in research methodology, in interpretations, or in all three, and are often not detected unless submitted to the scrutiny of observers who are external to the project itself.

Dissemination or generalization of new ideas and materials as they are developed is an integral part of the problem of implementation per se; well-defined plans for pilot implementation and for wider dissemination are too often conspicuous by their absense.

Most of the respondents to the survey of developed countries are already exchanging views with educators from other countries, and are sharing both their creative insights and their practical expertise in educational reform. Nearly all of them are willing to entertain ideas about standardizing skill development processes from nation to nation, but many feel that variations in content of education must remain wide and culturally determined.

THE CASE OF SWEDEN

With conscientious planning and with the tenacious sifting of information from sources both within the country and abroad, Swedish parliamentary authorities and educators have revolutionized their national system of education over the past several decades. Thus, Sweden's new "rolling reform" approach to educational change is a landmark proof that modernization, if it is sincerely desired, can take place in a relatively short

period of time and that the sacrifice of certain kinds of traditional educational structures can take a positive form.

Sweden's school system qualifies as "national" in scope because major policy and operational decisions are made at the national level. Parliament plays a significant role in policy-making for schools.

Despite this political centralization, independent boards do much of the work which is typically done by ministries in other European countries. The National Board of Education (NBE) is responsible for elementary and secondary schools and the Office of the Chancellor of the Universities is responsible for higher education. These boards are the administrative agencies which implement educational legislation.

Before reform, secondary schools were not administered by local authorities, but all comprehensive and secondary schools as well as elementary schools are now under the jurisdiction of municipalities, over 900 in number. In addition, the 24 administrative county units which are decentralized branches of national authority, are responsible for appointment of teachers and for in-service training. These county boards are composed of the county inspector of schools, school inspectors, in-service training officers, and county school psychologists.

Swedish centralism has demanded that internal school management practices be planned alongside of more general structural and organizational changes. These matters have not been left to local initiative and have therefore not always met with local (i.e., teacher or local administrator) approval.

Sweden does not suffer from a scarcity of qualified teachers, but reform has placed them in new roles and relationships and increased the need for additional in-service training. Teachers receive at least two and one half years of pre-service training at colleges of education to

teach in the first six grades of the comprehensive school (ages 7 to 13). Subject specialists in grades beyond the sixth have earned university degrees and have had an additional year of teacher training. Senior posts in secondary schools are held either by persons who have three additional years of college beyond their baccalaureate degrees or by those who have an additional degree. Class sizes are generally low, so that the teacher to pupil ratio is favorable.

Development of the Nine-Year Comprehensive School

Sweden's rolling reform movement had its origins in a Committee of Inquiry, a non-political group of advisors called together by the Minister of Education in the 1940's to begin the task of improving the schools and making them yield more successfully to the developing society's comprehensive educational needs. Gradually, the work of this Committee was turned over in 1946 to a legislative Commission, so that continuity of investigation and planning was assured.

This Commission proposed a nine-year comprehensive school that would replace the primary school, the General and Practical School, the Intermediate School, and The Girls' School. In 1950, Parliament authorized this merger, and the developmental work for several experimental nine-year schools began. Outcomes of experience with these schools were assessed and, by 1961, the study group was able to report its findings as positive and encouraging. In 1962 Parliament called for nation-wide conversion to the new nine-year comprehensive and compulsory school recommended as a result of the experimental school study, and this change-over was scheduled for completion by the 1972-73 school year.

Between the years 1946 and 1962 experimental efforts stimulated several curriculum revisions for these new schools that ultimately led to the 1969 version. Though all of the reforms mandated posed a number of problems

for implementation, the most difficult hurdle was the need to satisfy in one school all the demands for education previously satisfied in several types of schools. The problem was not only organizational, but also curricular : how to combine into a single curricular plan the general education of the old six-year primary school, the special education of the specialized school, and the first three years of the former secondary school.

Probably the most significant curricular changes made in the last three years have resulted from attempts to find balance between general and social education, and technical, or specialized education; and between required subjects and elective subjects. It should be kept in mind that a principal aim for the comprehensive school is to play a more active part in shaping and influencing society at large.

The curriculum change-over was scheduled in stages, with implementation in grade one, four and seven during 1970-71: in grades two, five and eight during the 1971-72 school year, and in grades three, six and nine the following year.

The comprehensive school is divided into three levels, junior, middle and senior, each running for three academic years. The first two levels (the first six years) are organized on a self-contained classroom basis, that is, one teacher teaches a class all of the various subjects assigned in the curriculum. While enrolled in the upper level, students attend school 35 hours per weeek, during which 29 to 30 hours are devoted to required subjects and the remainder to electives.

In the Senior level, a departmentalized organization is used, and the teachers are trained for subject-specific teaching. Throughout the comprehensive school, pupils are grouped in classes heterogeneously in all subjects except mathematics, English, and the optional second foreign

language (German or French), in which two courses of different levels of difficulty are offered.

Pupils begin in the new comprehensive school at age seven and they are normally finished with their studies in this school in nine years.

Three special features of the comprehensive school are particularly noteworthy. One is that in grade nine pupils spend three weeks of that year working at an occupation of their choice outside of the school. A second feature is that the study of English is required from grade three through grade nine in the comprehensive school. A third is that no examinations in the comprehensive school are determiners of the next step in a student's life along the educational ladder.

The marking system in the comprehensive school is actually a rank or merit designation on a scale from one through five, with five indicating higher merit. Such marks are given at the ned of the spring term in grades three, six, and seven, and at the end of each term in grades eight and nine when subject specialization begins. During terms when such rankings are not officially made, teachers nevertheless keep parents informed of their child's progress, usually in private conferences.

As of 1971-72 a pupil who completes the comprehensive school either attends the new gymnasial school or enters the work force. He is no longer "sorted" into one of several different kinds of secondary schools.

Development of the Integrated Secondary School

The new voluntary gymnasial school, or "integrated upper secondary school," is the only institution of secondary education now available directly upon completion of the nine-year comprehensive school.

The old multi-ladder system of secondary schools which existed in

Sweden immediately prior to the school year 1971-72 consisted of four parts: a regular academic gymnasium, a two-year continuation school, a vocational school of up to four years in length, and a folk high school. The continuation school and the vocational school have been discontinued and absorbed into the signle new gymnasial school. The folk high school, which may be phased out in the future, is still provided to satisfy a variety of adult educational needs. Because it serves this specialized purpose, it is not available to students directly after attending the comprehensive primary school.

The gymnasieskola is a comprehensive secondary school open to all students who have completed the nine-year compulsory school for basic education. The student may choose his own line of study and need not take entrance exams to enter that line. All lines which contain two-year courses in Swedish and English (and this is the case for most lines) provide free access to university studies. "Theoretical" and "practical" lines are under one roof and students may cross lines to study in mixed classes. All lines contain subjects of a general nature as well as vocational subject matter. Twenty-one lines are currently offered, although smaller schools may not offer all 21. They are in 3 categories: (1) arts and social subjects, (2) economic and commercial subjects, and (3) scientific and technical subjects.

In the 1960's, the final exams traditionally imposed at the end of the secondary school experience were gradually replaced by the same continuous assessment procedure used in the nine-year comprehensive school. These continuous "merit" assessments are made by means of nation-wide, standardized tests, spread out over the last two years of study. Continuous assessment is designed to identify students who are having academic trouble

so that they may be given additional help before the end of their course-work.

The "Rolling Reform" Process

In Sweden, there are three rational agencies that could initiate education content reform activity: the Ministry of Education and Cultural Affairs, Parliament, and the National Board of Education. Normally, however, the Ministry and Parliament act in concert, i.e., Parliament may ask the Minister of Education to prepare a proposal for a needed change or the Ministry may initiate a proposal which it then submits to Parliament for consideration.

The detail of education reform work is left largely to the authority and direction of the National Board of Education (NBE). The organization of this agency is shown in Figure 1.

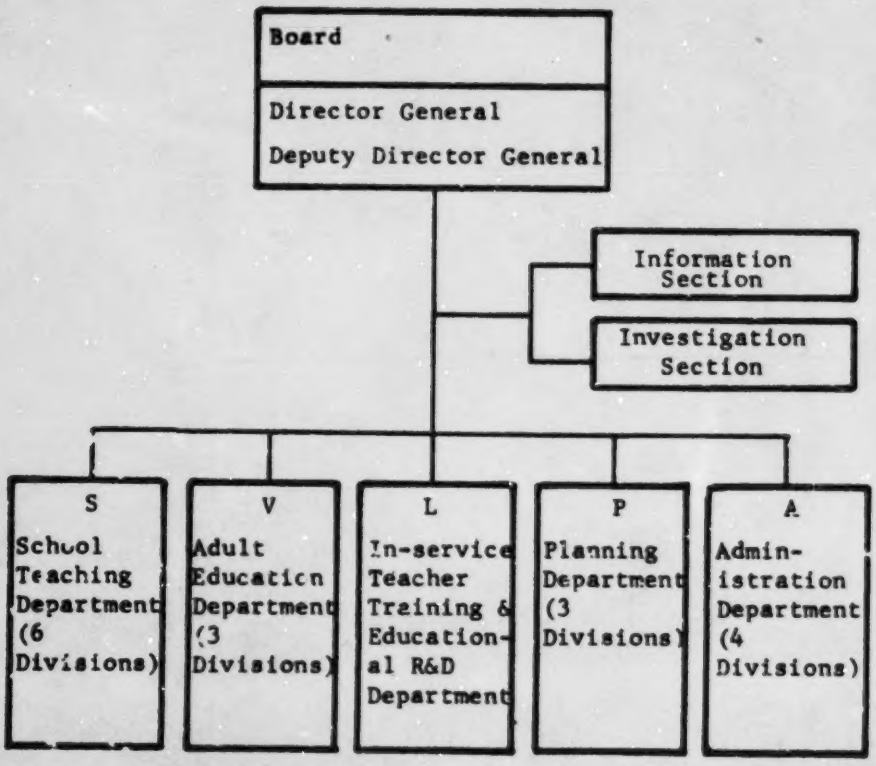


Figure 1: Organization of the National Board of Education

(Source: Educational Research and Development at the National Swedish Board of Education, 1976, p. 34)

From time to time, ad hoc Royal Commissions (such as the 1946 Commission) are established to study existing policies and make recommendations for major new policies. Such commissions may be composed of representatives of the creating body (Parliament or National Board of Education), specialists in education, and representatives of major social groups such as labor, business, and professional organizations. Subcommittees are usually composed of teacher specialists from universities, and are charged with drafting proposals. The Commission edits and integrates these proposals and then submits them to labor and business organizations, professional and religious organizations, and parent and student organizations for comment and approval. Suggested revisions are carefully made. If the reform plan is of major significance, it is submitted to Parliament for legislative approval also.

The Läroplan

The products of curriculum planning in Sweden are combined in a syllabus and study-plan manual called the Läroplan. Normally, the curriculum so specified is also submitted to external organizations for comment, and is triedout experimentally in a sample of schools. Feedback from both external and internal sources furnishes data for whatever revisions are needed. The revised curricular plans are then published and distributed to the schools, through local school boards, for implementation.

Curriculum planning strategies are similar for the nine-year compulsory and new gymnasial schools. The Laroplan for each type of school is a document of about 500 pages in length, setting forth the goals and objectives of the school and recommended methods of instruction and internal organization related to these objectives.

Curriculum Implementation and Research

There are three strong influences, other than the personalities and wills of teachers themselves, upon curriculum implementation. One influence is the time tables that are part of every curriculum document, indicating that so much time per week must be given to specific subjects. Teachers are bound by these schedules. The textbooks that teachers use in their classrooms are another influence. All textbooks have to be approved by the National Board of Education. A third influence is exercised by inspectors, maintained by the regional boards of education, and by gymnasial school advisors, provided by the National Board of Education.

The implementation processes themselves are not rigorously organized. Teachers are expected to read a new curriculum thoroughly when it is published and received. Conferences of teachers of the same class or the same school subject are conducted in schools to discuss the curriculum and how to implement it. The character of instructional plans that are developed thereafter are a responsibility of the individual teacher.

Sweden's content reformers have a strong commitment to make use of the results of educational research in decision-making. Not only has completed research been utilized, but new research has been commissioned to give direction to decision-making groups.

Though the bulk of educational research and development in Sweden is funded and controlled by the National Board of Education or is accomplished by funding of university projects through the Office of the Chancellor, the Swedish Council for Social Science Research and the Tercentenary Fund of the Bank of Sweden are also significantly involved. Total expenditures for Educational Research Development in 1974-75 were 46 million Swedish Kronas.

The research projects of universities and colleges are divided into four kinds: (1) Higher education and society -- structure and relations, (2) The organization and working patterns of teaching, (3) Evaluation: function and result control, and (4) Research and Development (R & D), organization development.

The National Board of Education is concerned with research at all school levels and has divided its research programs into six sections; one for each level -- pre-school education, compulsory elementary schools, upper secondary schools, adult education, and teacher education -- and a section for research in matters which cut across these four levels. The NBE is primarly concerned with long-range research projects designed to test the overall strengths and weaknesses of the "rolling reform."

Though many of the research projects are curricular, some are devoted to the production and control of learning aids. Educational funds are also invested in educational productions of the Swedish Broadcasting Corporation.

Evaluation

A special section of the National Board of Education, also located within the R & D division, is devoted to the construction of achievement tests. Practicing teachers, psychologists, subject matter experts from schools of education, and NBE personnel are engaged in this work which is considered an integral part of the "rolling reform" movement.

Two important longitudinal studies on the psychological and pedagogical effect of the educational reform are underway -- one dealing with an entire generation of trainee teachers at all schools of education in Sweden. These longitudinal studies are not departmentally located in the evaluation section of the Board, but are a responsibility of the NBE as a whole.

Another sort of evaluation is conducted as "curricular follow-up,"

which consists of three stages: collection of information, analysis, and taking of practical measures which are indicated by the data collection and analysis. Questionnaires, interviews, conferences, etc. provide the means to collect information from students, school personnel, and other target groups.

At the regional level, research and development responsibilities are divided between the county school boards and six regional boards. County boards oversee the on-site work of local and regional R & D; assess its relevance to local needs as well as to national educational objectives; make suggestions to municipalities concerning needed research and development projects; document on-going R & D activities, results, and future needs; and seek to equalize differences between municipalities, partly by initiating cooperative development work projects among them.

THE CASE OF THE UNITED KINGDOM: ENGLAND AND WALES

A new ten-year educational program for England and Wales was announced by the Government in 1972. It involves substantially increased expenditure in five sectors: a new program of nursery education for children age 2 to 5 to be provided free in public nursery schools; a larger building program for the renewal of primary as well as of secondary and special schools; a larger teaching force to improve further the staffing standards in schools; new measures to improve the pre-service and in-service training of teachers; and the development in higher education of a wide range of opportunities for both students and institutions.

Responsibility for carrying out these programs is distributed. The Secretary of State for Education and Science is responsible overall for education in England, for further education in Wales and for universities teaching civil science and the arts throughout Great Britain. Nursery,

primary and secondary education in Wales, are, the official responsibility of the Secretary of State for Wales.

Administration of publicly provided schools and further education programs is further divided among the departments of the central government (The Department of Education and Science and the Welsh Office), Local Education Authorities and various voluntary organizations. Local Education Authorities are responsible for the conduct of school education and most post-school education which takes place outside the universities.

Universities are administratively independent. There has been a rapid expansion in higher education in the last decade and a half, achieved to a large extent by creating ten new universities; by developing a number of college into universities (30 of them into polytechnics specializing in advanced work); by widening the range of flexibility of courses; and by establishment of the Open University.

The Open University is a non-residential university which provides part-time degree and other courses, using combinations of television and radio broadcasts, correspondence courses and summer schools, together with a network of viewing and listening centers. No formal academic qualifications are required to register for these courses, but the standards of its degrees are the same as those of other universities. In August 1979, some 65,000 students were enrolled in the Open University.

Arena for Content Reform: The School Unit

Unlike Sweden, there is nothing resembling a national education reform system in England. No organizational unit within the Department of Education and Science has as its responsibility the planning or implementation of curriculum for England's schools. The only national directive

to schools which is of a curricular nature is that they must provide for instruction in religion. This does not imply that the Department is not influential, for all school inspectors are department members and must work in conjunction with the organization's aims.

The Local Education Authorities (LEA's) provide and maintain school buildings and other support services, but they do not design or impose curricula except in those cases where an experimental or trial program is being tested in selected schools. In such an instance, the LEA may participate in planning and evaluation of activities related to these projects. But projects like these are much more examples of curriculum implementation and the development of instructional materials than of planning the reform of content itself. Since national and regional groups are not charged with these matters, the real arena for curriculum planning in England is the individual school unit. In the school unit, one finds a working team responsible for all the educational operations - curriculum, instruction, and evaluation. The team is composed of the headmaster and teachers of the school. These persons are accountable to the board of governors, or to managers, whichever the case may be. It is the headmaster who is considered chiefly responsible for reforming the curriculum and for other revised school practices.

The classroom teacher has extensive freedom in the selection of the subject matter to be taught, the instructional materials including textbooks, and teaching procedures -- assuming that such decisions are worked out cooperatively with the headmaster, or with the department head in a large school.

When there is a necessity to observe the output of the education content decisions of headmasters and teachers, there are some obvious problems.

From one point of view a content reform for a school is a written statement about what is to be taught in the school. It is the product of curriculum planning. From another point of view, it is also possible to regard the true curriculum as a set of unwritten agreements among professional personnel, committing teachers to teach a certain body of subject matter. It frequently is very difficult for an observer to identify precisely what the curricular commitments (written or unwritten) are and to discover how the commitments are made.

Schemes in Primary Schools and Syllabuses in Secondary Schools

In the primary schools the most common written expressions of curriculum are called "schemes of work". These schemes of work usually are brief outlines of topics to be covered in each subject by each class. Often a teacher's daily time schedule is considered to be part of the schemes of work. But, as already indicated, there are many schools in which written schemes of work simply do not exist. Rather, the contents of schemes of work are verbally agreed upon courses of action that teachers and headmasters carry around in their heads. There may be as much concern for good educational practices in these schools as there is in schools with written schemes of work, but it is extremely difficult in the first instance to identify precisely what is used to insure curricular coherence. There seems often to be greater concern for "how" to teach than for "what" to teach. Such a system tends toward very flexible, creative teaching activities, but perhaps sometimes at the expense of a clearly thought-out, long-term design into which to fit such activities.

The syllabus for secondary schools, for all practical purposes, is in the same format as the primary schemes of work. It is an outline of the various topics within each subject that are to be covered throughout each

of the terms of the school year. The syllabuses are generally prepared by department chairmen in cooperation with members of their departments, under the general supervision of the headmaster of the school. The degree, the scope and the frequency of production of syllabuses are very much dependent upon the headmaster and his perception of the need for reform.

External Influences on the Reform of Content in Education

There are both covert and overt influences brought to bear upon headmasters and teachers as they make curriculum decisions. These influences are summarized briefly below.

1. School Inspectors

Inspectors, appointed by the Queen in Council, chosen from the ranks of the teachers and headmasters. They make school inspections without any official set of documents or directions about curriculum; the criteria they use are largely informal and organized somewhat loosely around common experience and an internal system of communication.

All schools in England undergo a general inspection once every six to ten years. These comprehensive evaluations are done by teams of inspectors and cover all aspects of schooling including pupil services and building maintenance. Reports are submitted to the Department of Education and Science and, if approved, are also made available to headmasters, school governors, and the Local Education Authority.

It is probable, however, that greater impact on education content and school practice is made by inspectors during their regular school visits, when they participate in practical problem-solving, introduce new information in a casual way, and check on progress already made.

The inspectorate also conducts workshops and short courses for teachers throughout England and Wales, and these are so successful that they

often become the source of and the support for the development of new education content and techniques.

2. Examinations

Examinations for primary and secondary schools have been under scrutiny for at least a decade, and will continue. When the 1944 Act made secondary education free for all youth in England for the first time, new schools were conceived and new circumstances were created which demanded alternatives in examining procedures.

The old "eleven-plus" external examination for primary school students is now rarely used, partly because the new comprehensive secondary schools accept nearly all primary school learners. Where more stringent criteria are required for secondary school entry, headmasters and teachers are asked to provide guidance on the basis of their experiences with each child and on results of locally prepared and administered examinations. Many comprehensive schools give entrance examinations which help them to determine which pupils warrant sepcial attention.

In the secondary schools, two separate classes of external examinations are used, leading to different certificates. For the General Certificate of Education (GCE), students may take examinations at two different points, approximately two years apart. The first series are called "O" levels and are customarily taken at age 16. Advanced or "A" level examinations are taken at age 18 in three or four subjects, after in-depth preparatory work. Universities require a minimum of two satisfactorily completed "A" level examinations for admission.

The examination for the new Certificate of Secondary Education (CSE) had its beginning operationally in 1965, although it was conceived simultaneously with the creation of the Schools Council in the preceding year.

The creation of this alternate credential (the CSE) is a direct outgrowth of the conversion to free secondary education in England. The General Certificate of Education, - historically controlled by university-based examining boards, was viewed by many planners as an inappropriate certification for students enrolled in a new kind of secondary school, established to meet new kinds of goals.

Examining for the CSE may take place in two ways -- either through externally prepared tests on the content knowledge specified in the school syllabus, or through examinations conducted by individual schools. Whenever school or school group examinations are used, an external moderator must be provided.

Issues surrounding the two classes of examinations (leading to either the GCE or the CSE) are far from settled, even though both types are by now well established and tentative grading techniques have been accepted. Both general examinations will continue to dominate the school scene unless content reform itself precipitates demand for more specific examinations based on more explicit and differentiated learning criteria.

3. The Schools Council

The Schools Council for Curriculum and Examination is a body created in 1964 especially "to assume responsibility for most of the curriculum and examination work previously carried out by the former Secondary School Examination Council and by the Curriculum Study Group of the Department of Education and Science; and to decide on its own initial programs of activity." (Schools Council, Change and Response, 1965, p.1)

The Council is headed by a seventy-three-member Governing Council composed of representatives from thirty-one organizations including teachers' unions and associations, various councils, school leadership groups, and business and labor groups.

Teachers dominate the membership of the Governing Council and other main committees. Under the Governing Council there are the following committees and subcommittees:

Program Committee	Publications Committee
Curriculum Steering Committee A	First Examination Committee
Curriculum Steering Committee B	Second Examination Committee
Curriculum Steering Committee C	Subject Committee
Schools Council Committee for Wales	CSE Sub-Committee
Finance and Staff Committee	GCE "O" Level Sub-Committee

The Program Committee is the policy-generating group. Curriculum Steering Committee A is concerned with the curriculum for pupils from age two to thirteen and related proposals for research and development; Steering Committee B is similarly charged for pupils eleven to sixteen; and Steering Committee C is concerned with pupils fourteen to eighteen. There are presently sixteen Subject Committees which coordinate their work with the Steering Committees as appropriate. The titles of the remaining committees are indicative of their work.

The work of the Schools Council, other than committee functions, is directed by the senior staff, headed by three Joint Secretaries -- one from the Department of Education and Science, one from H. M. Inspectorate, and one from a Local Education Authority. In addition, there are project officers, field officers, a director of studies, an information officer, and other persons associated with the work of the various committees under the Governing Council.

The Schools Council has generated an extensive library of publications as a result of documenting the innovative work accomplished under its sponsorship. They include: teaching materials from curriculum development projects, reports of research projects, examinations bulletins, curriculum pamphlets, kits produced by Teachers' Centres, films, Wales school publications, miscellaneous brochures and information documents, and since 1968,

a journal entitled Dialogue. It is not possible to appraise the precise degree of influence these publications have had upon curriculum in schools of England, but the effect is surely substantial.

4. The Nuffield Foundation

The Nuffield Foundation has had a very significant influence upon content reform in England. Either alone or jointly with the Schools Council, the Foundation has been active in sponsoring curriculum development projects in the sciences, mathematics, the classics, and foreign languages. In all cases, the cooperation of the Department of Education and Science, the appropriate Local Education Authorities, and individual school personnel has been considered essential.

These projects have differed considerably in detail, but they have all had the common objective of stimulating the updating of syllabus materials and revitalizing classroom procedures in light of modern advances in knowledge and teaching techniques. Since 1970, the Foundation has been concentrating its efforts on improvement in higher education.

5. Teachers' Centres

There are perhaps 500 local Teachers' Centres throughout England and Wales, encouraged in their development by the Schools Council and supported by Local Education Authorities. These Centres are often referred to as "curriculum development centers", yet the variety of projects undertaken and themes pursued would imply a very broad interpretation of the term curriculum. Themes for study have been drawn from such broad areas as curriculum change, (objectives and content), innovation and improvement in techniques of teaching, use of instructional media and other technological devices in teaching, and the development of teaching materials. For example,

several centers develop materials which may be used in schools to explain and provide practice in the conversion of British currency to the decimal system. Some have organized subject-matter discussion groups and others have developed materials for specific teaching areas. Still others have established libraries, and newsletters and displays of successful school projects. Such a broad scope of activity indicates that a considerable amount of flexibility is permissible in the British approach to curriculum development. Participation of teachers is voluntary.

6. Regional Development Centres

An extension of the Teachers' Centres idea is the Regional Development Centre, an organization originally supported by the Schools Council and created to give broad stimulus and direction to curriculum effort. The Regional Centre is a cooperative group now sponsored jointly by a cluster of Local Education Authorities and a teacher-training institution. Where Local Education Authorities have established Teachers' Centres, they become a working part of the cooperative. The combination of an institution which has responsibility for teacher education in a given area and organized teacher groups from that same area in a single forum enhances considerably the possibilities for retraining of teachers through curriculum development work.

7. Sponsored Curriculum Reform Projects

Among the leading influences upon curriculum change in England is the sponsored curriculum development project. Most of these kinds of projects have been supported by the Schools Council or agencies in association with the Schools Council, e.g., the Nuffield Foundation. It is common practice for teams of teachers to be involved in sponsored projects. Frequently, the projects have been organized explicitly through the channels

provided by existing Teacher Centres or Regional Centres, in cooperation with consulting individuals from teacher education institutions. In fact, most sponsored project directors have been university-based. The resulting combination of factors -- clear financial support, an available group of practicing teachers, and access to personnel and resources from university facilities -- all amount to a significant potential for impact upon school curriculum.

Although sponsored curriculum projects vary in scope, duration, mode of operation, aims, and outcomes, they do tend to show a common pattern of development:

a. Investigation of aims and practices in a particular content area, and development of working definitions;
b. Creation of new materials;
c. Trial and revision of these materials;
d. Diffusion of the materials through publication, conferences, workshops, etc.

Ongoing evaluation is an intended part of all stages of the project, and finally, an evaluation of the effects of the whole process is attempted.

8. Public Influence on the Reform of Education Content

The loosely structured system for producing educational change in England is subject not only to individualistic educator's ideas about what good education consists of, and to the heavy constraints toward conformity which are imposed by externally created and centrally administered school examinations, but also to the pressures of public opinion. Education officials, headmasters and teachers are very much aware of the various school patron groups which they must answer to in their design and conduct of education.

The apparently casual way in which the reform of education proceeds in England and Wales, as compared with the structured decision-making of Sweden's central educational authorities, may at first seem sprawling and disorganized. But the fact remains that many remarkable innovations have occurred and continue to occur directly as a result of the vigorous autonomy which individual schools, headmasters and teachers have been given and are eager to preserve. It should be noted also, that both England and Sweden are employing a dynamic combination of centralized and decentralized curriculum development units, so that both national and local interests are taken into account.

THE CASE OF THE *U.S.A.*

The people of the United States and their elected or appointed representatives have made phenomenally strong commitments to education and to the support of educational institutions. Free, compulsory education is available for every child up to the age of 16 years. From then on until secondary school is completed, education is free but no longer compulsory. Further, all states as well as the federal government provide combinations of outright grants and low-interest, deferred payment loans to facilitate wider access to higher education. Special incentives are offered to provide education to disadvantaged populations, such as physically or mentally handicapped persons, various ethnic groups (e.g., the influx of Vietnamese refugees), and women who are entering the professional and service fields in unprecedented numbers.

In the fall of 1974, education was the primary occupation of 62.2 million U.S. citizens and immigrants. This means that in a nation of 212 million, nearly 3 out of every 10 persons were directly involved in the education process.

Though some levels of education are now experiencing declining or stabilized enrollments, no one expects that total spending on education will lessen. Per pupil expenditures vary by state, reflecting not only differences in effort, but also regional differences in cost for providing similar educational services. Factors such as need for special services, cost of living, population density, and climate influence the costs of schooling.

Rising costs have contributed to the necessity for constant review of educational techniques, structures and strategies. Government and private foundation grants stimulate innovative efforts across the nation. Informed

parents -- most of whom are themselves secondary school graduates and many of whom have higher education degrees -- continually demand better quality general education, closer attention to physical and psychological developmental needs, and more realistic career development for their children. Such parents often remark that, in terms of content knowledge, their children now graduating from comprehensive secondary schools are nearly equivalent to college graduates of their own generation. Clearly, students in the United States are learning much more, much faster, than ever before.

Not everyone is happy with this state of affairs. There are periodic outcries that competence in the basic disciplines (reading, writing, mathematics) has been sacrificed to the ideal of comprehensive education. What no one can dispute, however, is that great numbers of secondary school graduates have "learned how to learn" and are now continuing their education throughout their lives, by both formal and informal means.

The U.S. Commitment to Use of Science and Technology in Educational Design

The U.S.A. has in recent years turned increasingly to its scientific and industrial communities for assistance to designing effective educational experiences and cost-effective educational systems. Observers within the nation as well as abroad have noted quite accurately the particular impact which behavioral psychology has made on U.S. educational theory and practice in the 20th Century. Together with celebrated post-Sputnik efforts to increase educational productivity and to overcome the perceived lag in science education as the U.S. entered the space age, behavioral theories of learning have led to what some observers may view as an excess of enthusiasm for the behavioral and systems "engineering" perspectives in educational planning.

Science and engineering motifs do occur repeatedly in the U.S. literature on education over the past half-century. In 1968, for example, George Beauchamp was writing that "Curriculum engineering consists of all the processes necessary to make a curriculum system functional in schools" (p. 108). What Beauchamp included in this "engineering" was producing, implementing, and evaluating the effectiveness of the curriculum and the "curriculum system".

Along with borrowing from behavioral and systems sciences and technologies, U.S. planners have consistently utilized a variety of model-building technqiues from the social and other sciences. Though all of these adoptions from other fields have demonstrably widened conceptual possibilities and enriched methodological repertoires, there has been an unfortunate side effect: a problem of mixed metaphors and technical vocabularies that, attached to U.S. educational goals and strategies, sometimes make them appear unduly mechanistic and impersonal. This side effect tends to obscure the very humanistic things which are intended and which are, in fact, occurring.

The eclecticism of the U.S. approach is, in many ways, its strength -- reflecting as it does a firm commitment to an educated, pluralistic society and to an individualistic, effective learning experience for each citizen. Science is invoked as a means to an end, where both means and ends are intended to enhance the capabilities of citizens generally and to improve the quality of their lives. Because of the vastness and diversity of the educational problem-universe in the U.S.A., planners seem to have grasped eagerly every tool at hand which has given promise of contributing toward problem-solution. If this has sometimes seemed to result in irresolvable philosophical differences and mass confusion, it has more

frequently seemed to result in workable plans which have eventually met the challenge of educating nearly sixty million people a year.

In general, educational planners in the U.S. have come to respect the behavior-analytic and systems-analytic technologies as providing access to the information needed to make realistic improvements in educational practices. The technique of model-building is widely used in the confident expectation that it will become one of the most powerful tools available for incorporating the past, describing the present, and envisioning the future of education. The most useful models are explicitly conceptual, although explanatory diagrams showing important kinds and directions of activity may be added as work progresses. Conceptual models are rich in perceptive and analytical detail and, at their best, fully satisfy both humanistic and scientific criteria.

Reviewing a collection of such models, gathered from many sources, serves as a good beginning point for persons charged with new curriculum development. Models are usually designed on the basis of their generalizability, so that planners many readily abstract those principles which seem most relevant to their own national and community settings. The planning process then becomes a matter of specific adaptation and innovation, rather than a matter of either laboriously reconstructing the past or leaping uninformed and unprepared into the future. In other words, making useful alterations in a model already conceived -- or perhaps combining pertinent aspects from several different models -- to meet local requirements is a much easier task than starting the construction of a new plan wholly without reference to other experience. In fact, U.S. educators have constant practice in transporting models from one situation to another, because of the decentralized nature of the curriculum planning process and

the differences in state and regional priorities.

States and Communities: Centers of Educational Decision-Making

Though government agencies exist at the federal level to assist with educational development throughout the nation, it is the constitutional task of the separate states to establish and maintain their own educational systems. Different states exercise different degrees and kinds of control over the educational process, usually through a state education department. Hawaii, for example, is the most prescriptive of all the states on educational issues, because its educational system has been centralized from its beginning. In contrast, many of the schools along the east coast of the U.S. antedate statehood, and have therefore come under state jurisdiction out of a long tradition of community financing and control. A majority of states provide up to half of the money used by local districts, but prescribe only minimum curriculum, school building and teacher certification standards, leaving other educational decision-making to local school boards.

Thus, despite conflicting educational philosophies and jugments, the community remains the center of the U.S. educational energy and supports the major arena of content and process reform -- the local school system. The concentration of religious, political, utilitarian, egalitarian, and upward-mobility incentives for education in approximately 16,700 local school districts has unquestionably increased the number of variables with which educational planners must be immediately concerned, but it has also assured responsiveness of school systems changing social conditions. Though local school administrators often feel faced with the insurmountable task of "trying to please everyone," common public concerns in education do emerge and assume a national scope and character. That is the nation

itself has to some extent taken on the aspects of a community, with increased citizen awareness that what affects localities affects the nation as a whole.

Local School Districts: Models of Community Autonomy

Since at least 50 percent of school funds are raised by local taxes on real estate, citizens of each community have historically felt a sense of ownership in the operations of local schools. They exercise this "ownership" indirectly through representatives which they elect to local school boards, directly through parent-teacher organizations, in public meetings during which school issues are discussed, and in volunteer work to assist teachers or administrators with special projects.

The influence of community sentiment is not only potential but is also actualized; voters in school districts can defeat school budgets, decide on pay scales and other working conditions for teachers, and force districts to add or to remove controversial subjects from school curricula (e.g., sex or drug abuse education). But U.S. Americans have considerable faith in the social and economic worth of education and are willing to make sacrifices to see that the nation's youth are as well-prepared to face adult life as the nation's schools can make them.

The National Model for Educational Development

Since it has been constitutionally designed to play a supportive rather than a directive role in education, the federal government of the U.S. secures commitment to national values primarily through legislative and judicial policy-making which establish only broad, generally agreed upon educational goals. Some further control is exercised, however, through the selective distribution of federal grants. These grants, the largest source of uncommitted educational funding, are made available only in

particular areas of concern and with particular stipulations that equal opportunity and similar criteria for social progress are met. Most of these grants are made available through the Department of Health, Education and Welfare, though some funds are channeled through the U.S. Department of Labor where specific industrial or social service training programs are at stake. Secretaries of both Departments have Cabinet status in the Executive Branch of the federal government.[1]

Office of Education

The U.S. Office of Education,[1] formerly the U.S. Bureau of Education, was founded by an act of Congress in 1867. It is currently one of several operating agencies within the Department of Health, Education, and Welfare. The Office is headed by a Commissioner of Education appointed by the President with the consent of the U.S. Senate. Its major functions are educational fact-finding and distribution of published results, assisting school systems in problems of organization and management, acting in an advisory capacity to various undertakings of educational organizations and committees, and administering special kinds of federal funds for education (e.g., vocational, agricultural, compensatory education, etc.)

National Institute of Education (NIE)

In 1972, the Congress created the National Institute of Education, specifically for the purpose of helping to solve or alleviate critical problems of U.S. education through an intensified (and centralized) emphasis on research and development. The new agency represents a national commitment to the analysis of problems, the development of new methods and practices, try-outs and evaluation of innovations in schools, and assistance to schools in the adoption of tested ideas and materials. It is a

(1) As of August 1979, the U.S. Office of Education was separated and became the Department of Education.

recognition not only of a national obligation, but of the reduction in costs which can result from consolidating many fragmentary research efforts and avoidance of duplication. In the legislation which created the National Institute, Congress specified that "while the direction of the educational system remains primarily the responsibility of State and local governments, the Federal government has a clear responsibility to provide leadership in the conduct and support of scientific inquiry into the educational process." (NIE brochure, 1976, p. 3.)

Institute policy is determined by the National Council on Educational Research, a panel of citizens appointed by the President and confirmed by the Senate. In this policy-making capacity, the Council has identified six program areas: Basic Skills; Educational Equity; Education and Work; Finance and Productivity; School Capacity for Problem Solving; and Dissemination and Resources. The number of projects undertaken at any given time depends on the staff available and the amount of funding provided Congress.

Since the National Institute of Education was recently established, its eventual impact on curriculum and other educational planning cannot be predicted with any assurance. It seems certain, however, that the creation of such an agency constitutes widespread political and social recognition of the fact that education and society are inextricable, one from the other, and that advances in social science must be reflected continuously in the planning of educational systems if those systems are to meet the changing needs of the people who use them.

Regional Laboratories : A Model for Educational Regionalism

In a nation as vast as the U.S., regional biases are accepted political and social realities, and they are based on geographical, economic and historical factors as well. Recognizing the legitimacy of special interests

and the fact that particular kinds of problems are pervasive in some regions and not in others, the U.S. Office of Education in 1966 established a score of educational research and development laboratories in regional settings across the country. Much of the important curriculum development undertaken in the past decade has resulted from the creation of these regional laboratories.

One of the problems with regional work has been the lack of dissemination of findings and materials from one region to another, and to other schools outside of a particular laboratory's immediate research concern. It is however anticipated that the National Institute of Education, modeled after the Regional Centers, can establish mechanisms and encourage practices which will insure wider dissemination of well-developed and tested methods and materials, no matter where these originate.

The Process of Education Content Reform: Styles and Models

Aside from the philosophical obligation to support school democratization in a democratic society, other factors have influenced U.S. educators to adopt a more "participative" stance in educational reform than is true for most other nations. As an ethnic "melting pot" the country has been faced continuously with problems of cultural and racial integration in its public schools. Local control of schools has meant that the voices of all these diverse groups are heard in local school board meetings and other public forums concerned with education.

The community "ownership" of schools has also developed strong support for the idea that the school personnel who are closest to the students -- that is, the teachers, school curriculum specialists, and school administrators -- are the most appropriate leaders of education reform efforts, even if outside experts must be hired to assist them.

It is the same tradition and context of local decision-making which has given rise to the issue of student participation in reform processes. Educators in the U.S. are by no means unanimous in their opinions concerning the nature, or even concerning the validity, of student involvement. The students themselves, however, are increasingly vocal about their right to be heard and their right to influence decisions on curriculum and other school issues which affect their whole lives.

The broader the representation of various interest groups among curriculum developers, the more immediate is the recognition that diversity can be either a strength or a weakness. If divergent views cannot be safely expressed and submitted to group resolution, then groups which are composed of educators, scholars, lay citizens, students, social scientists, and others are doomed to failure. If, however, such groups are enabled to perform their development tasks in an atmosphere of mutual respect and cooperation, then the diversity of the group will tend to produce especially well-conceived and workable curricular innovations. Research findings concerning the bases of interpersonal relationships and the principles of group dynamics have contributed significantly to the development of techniques for working democratically and effectively in heterogeneous groups. In connection with extensive curriculum development projects, working groups are sometimes given explicit training in interpersonal techniques before they are asked to apply their energies and insights to curricular problem-solving.

As a result of U.S. experience in human relations training and action-research technology, the concept of school staff development has taken on added social dimensions. Though what is typically called "staff development" involves the preparation of school personnel to assume new roles

and perform new tasks, it has also begun recently to involve the training of staff in a psychological sense, to work interdependently with other staff, with students, and with representatives from the community, as well as to evaluate their own effectiveness as the work progresses.

Three major trends -- the progressive democratization of schools, the emphasis on local educational initiatives, and the development of human relations training -- have reaffirmed the philosophical commitment of U.S. educators to "grass-roots" values, fact-finding, and decision-making. This commitment does not deny a role to federal, regional, and state educational agencies, but it reveals the conviction that such agencies exist primarily to assist local school systems to work out their own special curriculum development problems, rather than to impose upon these systems a national curriculum pattern and compulsory reform.

Another recent development -- the demand that schools and school personnel shall be held strictly accountable for the success of the educational process -- has given impetus to the search for learning materials and methods which can lead to predictable educational outcomes. The development of programmed instruction and other means of individualizing the learning experience, as well as the setting of specific performance standards (i.e., specification of what levels of performance are acceptable and/or constitute "mastery" of content or skills) have heralded the new era of technology in U.S. education. Technology is invoked specifically to develop each student to his fullest potential. The charge that applications of technology have up to this point concentrated on most easily measurable and least socially sensitive skills may be accurate, but there are signs that technological devices and modes of thinking are becoming usefully integrated even in curriculum planning which takes great care to

develop humanistic aspects of education.

Curriculum Development Theory and Conceptual Model Building

Several prototype models for devising curriculum change have been used in the United States over the past few years. Smith, Stanley, and Shores (1957) have identified these as administrative, grass-roots, and demonstration modes of curriculum development. Since these are prototypes, they are often combined in a variety of ways which seem to fit particular local situations. But these are not the only models available. Some interesting variations include interpersonal relations, action-research, behavioral analysis, and computer-based models.

None of these curriculum change models is absolutely distinct from the others, but there are unique characteristics which help to distinguish each, as the following description indicates.

The Administrative Model

The "top-down" administrative model is the oldest and most traditional with a top administrator serving as initiator, committee appointer, and general director of the curriculum development project. A school or district superintendent may be the administrator who assumes this responsibility. Initial planning is done with other administrative staff, often after securing school board approval of the goal for the proposed change. A next step is the involvement of teachers, and in some cases, lay advisors. At this stage, more detailed planning begins, but actual construction of the curriculum is most often delegated to the teachers of the grade level or subject matter under consideration. Upon completion of their task, the teachers submit the curriculum documents for administrative review and revision as thought necessary. Field trials follow.

This standard "top-down" process is not only undemocratic, but relatively ineffective in producing real change. A major weakness is its assumption that curriculum development occurs in two separate phases -- construction and implementation. Studies in the nature of change processes show that change does not readily occur just because it has been mandated. People involved in the change need time to develop interest in and commitment to it. Neither of these conditions is provided for in the administrative model -- yet it is still widely used.

The Grass-roots Model

In this model, which contrasts most sharply with the administrative model, teachers themselves may initiate change, working together in a team fashion to solve curriculum problems in a subject area or a group of classrooms. The intimate involvement of the same teachers in both planning and implementation bridges the chasm produced by the "two-phase" concept of curriculum development (characteristic of the administrative model) and insures that these teachers will be interested in the planning and eager to see its results.

Students, parents, and other members of the community may also participate in planning groups at the grass-roots level. Critics of this model of curriculum development tend to doubt whether teachers, administrators, curriculum specialists, students and other non-professionals can give any real assistance to educational reformers. Others feel that it is entirely appropriate that all these groups should be involved, but not necessarily at all stages in the development process or performing the same tasks. A recognized strength of the model is the generation of ideas from many different perspectives, and the avoidance of too narrowly conceived goals and objectives. Another perceived advantage is a

predictable increase in competence of all group members as they seek to solve problems cooperatively. Smith, Stanley and Shores (1957) have stated that curriculum will improve only as the professional competence of teachers improves, and participation in grass-roots curriculum processes markedly improves teachers' understanding and use of the products developed.

A charge often made is that the grass-roots modal is excessively time consuming. It may instead be the case that more time spent at the initiation and planning stages actually saves months of time in the implementation stage.

The Demonstration Model

Small scale innovations have the merit of introducing important changes in the curriculum without completely disrupting normal procedures throughout the school system. Such pilot curriculum development projects may be either formally or informally initiated, by interested administrators or by teachers themselves. The objective is to demonstrate the effectiveness of a proposed change before an entire school or school district is asked to accept it.

The advantages of the demonstration model of curriculum development are obvious: the changes desired are proved to be workable, potential resistance of school staff to subsequent change is reduced, and planning/implementation cycles are intimately related in time and locus. There is, however, a danger that the teachers involved in the demonstration work will be viewed by their peers as "outsiders" by virtue of their innovative roles and priviledged information, making the entire demonstration project suspect along with its personnel. This particular danger can be mitigated if the demonstration unit is enabled to communicate openly and

frequently with other school faculty, as well as with parents, students, and interested community members concerning the progress and mertits of the innovation.

The Interpersonal Relations Model

Based on insights and evidence gleaned from research in applied behavioral science, the interpersonal relations model focuses on "people change." It represents a conviction that problem-solving processes depend for their success on the development of individuals who are flexible and open to change, and who can themselves influence others to welcome innovation and personal growth experiences in their lives. Curriculum development, in the strictest sense of the interpersonal relations model, proceeds by way of the development of improved self-knowledge and interpersonal communication, which in turn creates a climate of mutual trust and respect which is conducive to cooperative task performance.

Procedurally, a development task force or committee is selected and asked to participate in a training ("T") or encounter experience, in the company of a skilled group facilitator and in a setting away from the school or school district which is the target for curriculum change. The training may be conducted on successive weekends or week-long retreats. One of the primary outcomes of such human relations training groups is participant's increased ability to listen carefully to what others are saying and development of genuine respect for different points of view.

The curriculum development group utilizing this model may actually start out as three or four separate groups -- administrators alone, teachers alone, parents and/or students alone. The goal, however, is to integrate these groups (or selected members from each of them) into a single working unit.

Many modifications on the original model have been made over the years since its introduction, the most notable of which may be the combination of interpersonal relations training and action-research.

The Action-Research Model

Action-research approaches to curriculum development assume that curriculum change is social change, and that persons in such development activities are social change agents. Their responsibility, in this interpretation, is to society as a whole as well as to the school systems they represent. Individual personalities, school organizational structures, patterns of social interaction within the school and community outside the school, are all concerns of the action-research team. Each sector of the society in which the school is embedded has its own ideas and expectations concerning the process of education, the roles of educators, and the performance of students. Action-research involves the design of mechanisms (1) for assessing the nature of these ideas and expectations, (2) for incorporating this data in the steps taken toward curriculum change, and (3) for facilitating constant feedback processes form developers to constituents and back to developers again.

The action-research model is deliberately cyclical, based on continuous data collection and evaluation, continuous planning, and continuous implementation. Decision processes are invoked step-by-step, rather than far in advance of implementation procedures, and in this fashion are made responsive to the most current data available. Procedural shifts can be quickly made, and restraining as well as facilitating forces can be promptly identified and avoided or accomodated as the development work proceeds.

As in laboratory research, the action-research approach to investi-

gation is relatively unbiased as to exact direction, and outcomes are not strictly prescribed. The aim, however, is immediate change -- i.e., immediate applications of the empirical knowledge which develops along side of the action-research. This empiricism does not depend on controlled experimentation as in basic research, but it has the advantage of immediate usefulness. It should be noted that the study of change -- in and of itself -- is productive of change. Action-research therefore moves in the direction of change long before concrete curriculum products are devised.

The dynamic concepts and processes inherent in the action-research model depend on intellectual and social growth of developers and constituents alike. In this respect, it is a difficult model to follow, though the rewards of doing so are potentially great.

The Behavior Analysis Model

Essentially, this model depends upon behavior observation and minute description of tasks and elements of tasks performed. When this analysis and description is complete, instructional sequences are designed to guide students through compenent steps toward the desired complex task performances. The model assumes that behaviors can be gradually shaped toward specified needs. The use of this model is most common in psychomotor skill training, although aspects of behavioral analysis enter into the data collection phase of a number of other curriculum development models.

The Computer-Based Model

Individualization of instruction is the goal of curriculum development which is based on computer analysis of student strengths and weaknesses and automatic presentation of appropriate learning materials to

reinforce strengths and overcome weaknesses. Although prototype designs of this model exist, common use is not expected in the near future -- in part because of computer costs and in part because it is difficult to decide what data yields the most relevant computer "prescriptions" for learning.

The Systems Analysis Model

What is possible but perhaps rarely accomplished through use of the systems analysis model is an effective amalgamation of methods and structures from other models in the accomplishment of curriculum change. Though the model is basically production-oriented, with input, transformational throughput, and output components, it is highly flexible and potentially useful over a broad range of curriculum development efforts. Systems analysis is as workable a model for curriculum change at the national level as at the local level, for the basic methodologies involved are context-free. Systems techniques are, however, applied directly to analysis and understanding of whatever contexts are relevant to the particular curriculum improvements sought. Needs are assessed, desired outcomes decided upon and prioritized, potential resources are catalogued, and appropriate operational and change strategies are selected. Evaluative mechanisms are an intrinsic part of systems design, and assessment and decision points are regularly specified. The typical systems-analytic model is a linear input-throughput/transformation-output, or *production* system or set of systems, but numerous variations have been and continue to be developed as occasions warrant. Many of the newer systems models are essentially non-linear and highly dynamic. Nevertheless, the basic components of the systems approach to curriculum and other educational decision-making are consistently present, no matter what their arrangement.

The systems approach to educational problem-solving is perhaps the fastest-growing of the newer curriculum development models in the United States, since it is responsive to multi-variate considerations and requires clearly defined goal statements prior to the initiation of costly development activity. It "maps" the destination and the possible routes which can be taken to reach it, and marshalls the resources which are needed.

Chapter 3

THE REFORM OF EDUCATION CONTENT: THE CASE OF ARAB COUNTRIES

The results of the 1978 survey on which this chapter is based bear out the findings of an earlier study, conducted in 1974 by personnel of the UNESCO Regional Office in Beirut (entitled Mechanisms for Planning and Administration of Curriculum Development in the Arab World). Without denying that some progress has been made since 1974, it must be admitted that, according to their own report, there still exists too wide a gap between what Arab education content reformers would like to do and what they have actually accomplished. Most 1978 survey respondents reported that their content reform units are still understaffed and/or inadequately qualified, and that even where expertise is at an acceptable level, there are difficulties in communication with higher level Ministry personnel as well as with school administrators and teachers in the field.

Research is largely confined to opinion sampling, and experimental trials of new content in model schools are only beginning to be established here and there in the Arab world. Parents and students have little say in what is taught, although many content reformers say that they should have greater input. Teachers and school administrators are allowed to react to changes planned for the schools, but are not normally involved in the planning itself.

Most content change is still limited to textual revision and preparation of teachers' manuals, with some incorporation of audiovisual aids.

Though such revisions are clearly needed, they are but the "tip of the iceberg" -- the changes most easily identified and most easily accomplished. Submerged beneath the surface are problems of far greater scope, involving the necessity to reexamine the organization of the Arab educational systems themselves. Over and over, these systems have been characterized by respondents as "too inflexible," not well designed to accomodate change or to facilitate the progress of Arab students.

Statistical data available to education content reformers is minimal -- limited usually to a mere counting of students and teachers and reporting of student success rates. Examinations are viewed as poorly linked with new curricula, and as not presenting an honest view of what students have learned. Many survey respondents saw a necessity to learn to evaluate whole programs of study, as well as to learn to evaluate student achievement in more effective ways.

Technical assistance in most aspects of education content reform is sorely lacking, and there are also severe shortages of technical books and materials written in Arabic. These problems persist even though there is widespread awareness that the scientific and technological advances of the modern world make it critical that content reform in science and mathematics should occur, and that vocational and technical training should assume more prominence.

New governmental policies concerning education are clearly providing the impetus for large-scale education content reform in the various Arab countries. But an almost universal dependence on the "top-down" or administrative model of initiating change, with all of its built-in weaknesses, plagues development efforts. In the Arab countries, as in educational systems everywhere in the world, there is a tendency for authorities in educational super-structures to be too optimistic about the effect

of the central strategies used, and to take for granted too often the supposition that changes in curriculum guidelines and other innovative measures will automatically change classroom behavior. Reactions from teachers as well as researchers clearly indicate that this is not the case. Strategies cast only in the top-down, administrative mold therefore cannot realistically control or account for all of the decision-making which must be done in the process of educating a nation's people. The fact that today's Arab educators are earnestly searching for new approaches to content reform, may constitute a recognition that old, authoritarian school edicts are not working well, and that some powers of decision must gradually be delegated to other levels of the educational system.

Although top officials in charge of education content reform agree unanimously about the need for improved teacher training and improved training for curriculum development workers, they are often not quite so ready to accept the idea of undergoing retraining themselves. In cases where reformers feel keenly their own shortcomings, the training they would most like for themselves and for their staffs is greater experience with various learning theories, with educational psychology, and behavioral objectives and their application. There is a common assumption that the upgrading of skills may be accomplished best through scholarships to study abroad, through conferences, and through in-service training workshops.

The persons surveyed seem well aware that education in the Arab world faces a number of important challenges, but they also agree that even where content reform mechanisms are in place, the discouraging lack of change in attitudes of educators generally prevents their optimal use.

This picture of discouragement and frustration, realistic enough, is not entirely bleak. There are many hopeful signs which indicate a

strengthening of Arab commitment to significant reform, and to the embodiment of traditions within new educational forms. Though these signs are evident everywhere in the Arab countries, a few outstanding projects have been selected to illustrate the diversity of problems faced and the range of problem solutions which have been applied to date. (The alphabetical arrangement of countries and their projects has been preserved from the case studies as presented in the earlier research monograph.)

THE CASE OF EGYPT

Though plagued by economic constraints, a traditional emphasis on universities at the expense of universal education at primary and secondary levels, high student-teacher ratios in the classroom, unevenness of educational quality form school to school, and shortages of facilities and equipment, Egypt has nevertheless begun significant education content reform. All large scale projects are guided throughout the period of innovation by a Higher or General Committee representing each major unit within the Ministry as well as by the National Center for Educational Research, together with attached experts from other national or international agencies.

Egypt is one of the first Arab nations to design facilities and programs of study especially for the preparation of education content reform personnel. The impact of this has been an increasing role for Egyptian content reform specialists in national educational change and development as well as an ancillary role in providing consultation and training to other Arab nations in the Middle East.

One of the approaches to large scale internal reform which Egypt is currently undertaking on a trial basis (and continuously assessing)

is the development of integrated education, which combines theoretical and vocational or applied studies within a single experimental school. The intention is to encourage students to participate in both kinds of studies, rather than to lock them into a single track for the duration of their secondary education. The entire reform, requiring intensive planning, retraining of teachers, and provision of new facilities, as well as development of a comprehensive curriculum model, was designed to be implemented in stages over a period of three years, ending in 1976. The significant effects of this reform and the generalizability of the plan to other schools in Egypt are matters which are still under investigation, but first results are promising.

The Nasr City Experimental School

The Nasr City location for the first integrated school was chosen in part because it was a new school, in a newly settled area, and was considered open to the goals and processes of innovation. The school was planned and built with the cooperation of West Germany. According to purpose, it was expected to: (1) serve as an exemplum of the conversion of combined elementary and preparatory school cycles from the 6 + 3 pattern to an integrated 8-year continuum, and (2) demonstrate the value and effectiveness of combining college entrance or "theoretical" subjects and vocational education or "applied" subjects and workshop experiences within the setting of a single school. In its first year of operation (1972-73), it conducted just three classes in the first and fifth grades. Other grades were phased in over the next three years.

The normal population of the Nasr City school is 840 students. Students are admitted at age six, and annually a new group of 105 students

(three classes of 35 each) is enrolled. No students may transfer into the school from other schools because of the differences in curriculum. Students may transfer to regular elementary or junior high schools at the equivalent grade levels, however, except in the case of eighth graders. The latter must transfer to the final (9th) year of junior high school, since they are in their terminal grade in the integrated school system.

The school is a free modern, cooperative coeducational school for boys and girls, operating under the laws pertaining to all public schools. Students attend for the whole day and are engaged in full time study, with the midday meal provided by the school. The school is considered polytechnical rather than vocational. Its integrated program has theoretical and technical or applied studies (such as manual arts) standing in complementary relationships to each other throughout the eight-year sequence. Elementary and preparatory levels are incorporated in this sequence.

The students are encouraged to be interactive with their environment, practicing democracy in both curricular and extra-curricular activities. School philosophy requires that students shall be encouraged to learn self-control and leadership skills. The social role of the school is explicit, and representative of the new sort of training for Egyptian citizenship in the modern world which the nation's education content reformers have specified.

It is of course intended that, on completion of eight years at this school, students will be adequately prepared to enter their choice of general education, vocational, or teacher training high schools, and will have had opportunities for field work after their basic instruction in applied studies. There is an emphasis in the Nasr City school on preparation in science, geometry and second languages (German and English).

Physical education is required. For the most part, it shares the curriculum of regular elementary and preparatory public schools, with the addition of the following:

1. Modern geometry and its applications;
2. Elementary environmental studies, including health, science, and social science, national education, and attitudes;
3. Science curriculum taught as individual subjects, with higher standards than are required in the regular junior high or preparatory level.
4. Polytechnical subjects (manual arts). First grades work primarily in paper, clay and wood. Third and fourth grades may also work with plastics and fifth grades are introduced to metal work. Grade six may use a variety of materials, and operate machine tools. Also, in grades four through six, students may be involved in preparation of soil, planing and cultivating of agricultural products. Agricultural studies are related to biology and geography lessons. Home economics is important and required of all students, both boys and girls, from grades five through seven. Boys are not required to continue home economics in the eighth year, however.
5. Physical education;
6. Music, including music appreciation, basic theory, songs and poetry, different instruments, and orchestra (all grades);
7. German language, grades seven and eight. Students learn practical terminology, names of tools, instructions for their use, technical manuals, etc.

Subjects are clustered in four categories: I. Cultural Studies; II. Scientific Studies; III. Vocational Studies; and IV. Aesthetic and Physical Education. Polytechnical/vocational studies gradually increase in importance, from 7.4 percent of total school time for a first grader to 12.8 percent for an eight grade student.

Second languages are required from sixth grade on, and geography, history and social studies begin in fith grade. Mathematics hours remain high and nearly constant from grade to grade, but the addition of biology in the fifth grade, physics in the sixth, and chemistry in the seventh and eighth shift the percentages of time spent in scientific studies

toward the higher grades. Vocational, aesthetic and physical education account for only about one-fifth of total hours in class.

New Examinations

In general, the rules governing development of examinations at Nasr City are as follows:

1. All subjects are considered "basic" and of equal value. All must be evaluated in some manner.
2. The development maturity of students must be remembered during test construction, whether these are cognitive, skill performance, or art appreciation tests.
3. Elective subjects will be tested at the level of the same subjects in intensive schools.
4. Because there are a total of 19 subjects, different modes of testing (written, oral or performance) may be used. Integrated tests may also be constructed, covering two or more closely related subjects. No student will be asked to write more than eight in applied subjects.
5. Examinations will be made similar to tests in the same subjects in equivalent grade levels in regular schools.
6. Examinations will be based on 100 percentage points.
7. Physical education examinations are first in order of administering. Vocational and manual arts tests will follow academic tests, so that students may concentrate on written examinations first.
8. Examination preparers are foreign experts in subject areas that are completely new, or translators, or persons who have already implemented such examinations elsewhere. All of these writers are, however, subject to test guidelines established by the school.
9. In the case of subjects taught as one unit, e.g. physics, chemistry and biology, the student will be tested in the subject of his choice only. He will receive his years' average as a grade in the other subject(s).

The first school examinations were prepared by a committee composed of the General Director for Educational Administration in Heliopolis, the General Director for Junior High Schools, the Chief of the Experimental Unit of the National Center for Educational Research, the Chief of the German experts, and a representative of the General Administration for Examinations. Upon completion of their work, the tests were submitted to school leadership for review before they were administered to the students.

Final examinations contribute only 30 percent of the student's year-end grade. Throughout the year, the student is evaluated continuously and formatively, in written, oral, and manual arts dimensions. Results of these ongoing evaluations are recorded monthly by teachers on the final examinations. The central theme of the process, therefore, is the provision for continuity: from specification of learning objectives, to formative evaluation, to summative evaluation; from beginning to end of the learning events in any particular course.

The procedures used by the group of developers are stated very specifically in the report called Projects and Achievements for Educational Research, (from the National Center for Educational Research, 1977. Teachers were asked to establish the test intervals and arrange the subject matter for each course into segments appropriate to these intervals. Cards were prepared, each stating a major concept of each segment or unit, with space left on the card for a question or questions to be written in. The subject matter specialist then took these cards, grouped by units, and stated measurable behaviorial objectives which were representative of each unit and in accord with the previously specified curriculum objectives for each subject matter. Information was added to each card stating how the desired learning could be measured, and noting the scientific importance of the concept and its measurement.

Jointly, subject matter specialists and evaluation specialists worked on this phase of the project, with evaluation specialists writing the questions and alternative questions for each card. The lower-half of the card was left for reporting the results of statistical analysis of each question after trial examinations had been administered, including degree of difficulty of each question and reporting whether the question

would be included in the final examination.

Questions were finally placed in test booklets, with prepared instructions and clues for answering a few sample questions given at the beginning. Each test had a specified time frame. A grading key was prepared by the Center specialists for quick scoring of answers. The evaluation specialists instructed teachers in the use of the tests, and explained the methods chosen for reporting results to the General Administration for Examinations. The Department of Analysis prepared to analyze results and to send an interpretation of outcomes back to the teachers. Teachers were then to have the opportunity to revise instruction on the basis of this interpretation of test results and to make certain that concepts and questions frequently missed were reviewed and reinforced before the next testing period.

By the time of publication of the Research Center report (1975-76), the project had begun the last step of preparing similar testing instruments for other grades of the junior and senior high school.

In addition, the nation's educational planners are in the process of completely recasting their system of junior and senior high school examinations, along much the same lines as for the Nasr City School.

THE CASE OF IRAQ

Iraq has been a republic since 1958. One of the premises of the independence movement was the reform of education, and in fact, considerable progress has been made despite the overwhelming problems of adult illiteracy, inadequately trained educators, shortages of schools, and traditional curriculum materials which the new socialist regime inherited.

The basis for educational change in Iraq is frankly social. Education has been nationalized and all public schools and textbooks are free. Children between the ages of six and twelve are subject to compulsory school attendance, and adult literacy education has also been made obligatory. The spirit of educational reform is pragmatic as well as social; Iraq is interested in quick results from its socially and scientifically objectified educational programs. Perhaps for these reasons, Iraq adopted almost immediately a positive view toward mediated learning, a broad interpretation of curriculum and curriculum development, and a firm commitment to the socialization and human relations aspects of modern schooling.

The Iraqi philosophy of education content reform, then, is bound to the philosophy that schools are social groups within which all members of that society -- teachers, pupils, and administrators -- interact dynamically to fulfill their separate needs. Changing curriculum means changing the nature of the school society.

At Ministry level, there has been established a general directorate or division which has the responsibility for all curriculum development, including the preparation and production of educational media. Under the mandate of the Ministry (No. 13) issued in 1972, this General Directorate for Curriculum and Educational Media has jurisdiction over five sub-units or departments. These are the Departments of Curriculum and Textbooks, Educational Media, Educational Television, Laboratories, and Books and School Libraries.

Although a recent project for development of a modern mathematics curriculum for elementary school students in Iraq has attracted considerable attention, it is Iraq's initiation and development of educational

television which is a prototype, and therefore of special interest to other Arab countries.

The Development of Educational Television

When educational TV programs were first made available in Iraq, they were cooperatively produced and aired by the Ministry of Education and the public television channels. It was eventually decided that the use of public facilities was too limiting, and that the Ministry needed its own channel and production facilities if it was to carry out its programming effectively. This led to the organization of the Educational TV Center as an independent unit in 1973.

The first receivers were installed in 50 schools in Baghdad and programming was confined to mornings. The experiment proved so successful, however, that 1,200 schools in three stages of education now receive broadcasts via the microwave network. Early evening programming has been added and the range of subjects covered is continually expanding. For the most part, programs are meant to complement school curriculum, but other school-related events, athletic contests or exhibits may also receive educational TV coverage.

Relying at first on the technical assistance of a British consultant, the Iraqi planners sought consciously to develop a rationale and purpose for educational TV that would take into account the unique social revolutionary goals of the nation. They arrived at these specific objectives:

1. to help teachers to use modern technology and media in education; to help them develop new skills and profit from new experiences in modern educational methods;
2. to demonstrate the relationships of contemporary events and trends with changing school curriculum;
3. to train students in self-reliance and independent learning;

to develop scientific attitudes and the spirit of research; and

4. to use TV equipment in the service of educational planning and in the provision of useful educational products for the benefit of schools, universities, and literacy training centers.

There is a Higher Consultant Committee in the Department of Educational TV which provides general guidance for its development. This committee makes the selection of academic and cultural subjects which will be covered, studies feedback on recent broadcasts as it is received from teachers and parents, and recommends solutions for problems that arise.

A second subject matter committee is responsible for organizing the material, script writing and production work. Each committee prepares an annual work plan for a year in advance, dividing content into units, deciding how much to incorporate in each unit, suggesting an appropriate presenter, and working with technical staff. Teacher presenters are chosen on the basis of voice quality, broadcast personality, ability to communicate, and attitude toward the subjects to be presented. They are also given special training in techniques of TV presentations and "stage presence" before they go before the cameras. Presenters are encouraged in their efforts by being assigned only one-third of a full-time teaching load. Subject matter inspectors who are involved in the TV productions are also released from some other duties. There are also financial incentives. Most presenters are especially trained for these responsibilities, and their motivation is high.

There is a separate subject committee also for literacy education. Some 90 separate lessons in literacy have been prepared, concentrating mainly on reading and basic computational skills. Literacy education is presented also in the Kordy language.

There are four permanent functional units within the Educational

TV Department. One is management and planning unit, which provides administrative back-up, organization, and distribution of work-load for the production activities and for the dissemination of programs to schools.

A second unit is an engineering component, largely concerned with technical maintenance and hardware responsibilities. The third unit has charge of actual production. This production component has a graphics design section, producers, directors, and various production resource materials and "stage properties." A picture and film library is maintained and science laboratory equipment is kept available in order to provide pictorials or set properties for new productions. The program director is the "translator" of scripts, visuals and actions into the finished presentation. There is a preference for directors who are familiar with the subject matter under consideration. Most producers have fine arts and educational studies backgrounds, and may have teaching experience. These decision-makers are assisted by a variety of technical personnel. All productions are previewed and edited if necessary before airing.

In brief, the steps which are taken in the process of TV lesson preparation are divided into planning, production, evaluation and revision, and dissemination and follow-up phases. Once the program is aired, the responsibilities of the fourth or follow-up component in the Department become visible. This unit is specifically charged with assessing the impact of broadcasts in the schools and reporting their findings to the Higher Consultant Committee. The staff of this unit includes specialists in education and psychology, who evaluate the effectiveness of the TV learning experiences via field visits, opinion surveys, and observations of children and their reactions in the classrooms during and after

broadcasts. This comprehensive evaluation effort is viewed as absolutely essential, if programming is to improve and to meet the educational needs of the people successfully.

The physical facilities where all production activities and, in fact, all of the Department is housed occupies 300 square meters of space. There are two projection rooms, one studio for production and rehearsal, a slide projection room, photographic and printing rooms, a film and book library, a graphics production area, reception and conference rooms, and office space for administrators and other personnel. Studio production work is tightly scheduled to make the most efficient use of the facility.

A schedule of regular broadcasts is prepared and distributed to the schools prior to the beginning of each school year, so that teachers can integrate the educational TV programs in their course planning. Teachers now also receive a manual which summarizes each program, highlights the major issues or concepts, and which serves as a reminder of planned broadcasts and scheduled times. Some programs also have accompanying student handbooks.

Though there are a number of unresolved problems which Iraq's educational TV planners face, they remain convinced that TV lessons offer special advantages in developing nations and that problems can be gradually ironed out as their experience with the medium accumulates.

THE CASE OF KUWAIT

Early in 1974, a committee of Kuwaiti educators met to re-evaluate educational objectives and to reconstitute policy statements. The planners analyzed objectives in four categories, concerning (1) the nature of society, (2) the nature of modern life, (3) the developmental characteristics of students, and (4) current educational approaches.

The detailed objectives provide a thorough rationale for the development of comprehensive schools in Kuwait. Associated with this development is the recent introduction of a credit system of course work and the provision for a wider range of academic offerings to meet individual student interests.

An important factor in this developmental work was the creation of a Center of Research for Curriculum Development. Though the Center is located within the Ministry, it functions independently to (1) conduct studies on problems referred to it by the Ministry or by educators in the field, (2) develop curriculum support materials, texts, and associated teacher training programs, and (3) plan both short range and long range content reform procedures for all educational levels and in all fields of study.

In 1974-75, the Center conducted three pioneer studies, including opinion surveys, classroom observations, and detailed analysis of textbooks. In light of the study results and in accord with the revised national educational objectives, the Center proposed that all content reform should be based on the following principles:

1. Any curriculum for any subject should be developed as a continuum from elementary through secondary cycles, and should be sequenced as appropriate for each level within that continuum. Curriculum should also be coordinated with that of other subjects in the same grade, so that both vertical and horizontal integration of curriculum is achieved.
2. The Center should assist general committes in constituting subcommittees and should provide guidelines for textbook writing and revision which reflect modern approaches. Particular care should be taken to insure that individual differences of students are taken into account and that traditional ideas of accumulated fact-learning and memorization do not dominate the textbook development process.
3. Analysis of needed audio-visual components, equipment, and facilities should be made, in preparation for content reform

and as a means of accomplishing the objectives of the curriculum.

4. Teachers must be trained to implement the innovations.
5. New curriculum should be experimentally implemented in sample schools or classes before generalization.
6. Generalization itself should not be considered a final step, because curriculum development is a continuous process. Periods of stabilization are, however, desirable.

Center leadership is deeply concerned to present curriculum development as a holistic process with a great many interrelated subordinate processes and concepts. Though changes in curriculum often imply changes in school facilities, Kuwaiti researchers are insistent that new curriculum field trials need not depend on the construction of ideal schools and physical facilities. They can be made immediately in existing schools, and revisions can go forward even as new schools are built and old ones remodeled to accomodate the requirements of modern education.

Planning for Comprehensive Secondary Education and the Course Credit System

The Center's study of existing schools and of alternative school systems led to the adoption by the primary committee of plans for gradual conversion to the integrated secondary school model. As a long-range goal, intermediate education will also be included eventually in the new horizontal and vertical integration of course work. One marked advantage of the selected model, the planners noted, is that it does not force a student to repeat a whole grade if he fails in one subject. Transfer from one field of specialization to another is also facilitated, should the student's goals or interests change.

The planning was conceived as a series of action steps. The first

step was to conceptualize subject units as courses or parts of courses, to integrate these with each other, to realign class scheduling, and to assign units of credits to each course. The proposed distribution of studies over the whole period of comprehensive secondary education called for these emphases:

57.5%	common core studies
15 %	free electives
20 %	courses in field of specialization
7.5%	complementary subjects

The cycle for each student would conclude with a selection of a career or vocational specialization which he might expect to pursue in higher education. Suggested contact hours per week per student were 25 in each of the eight semesters. Total contact hours over the whole secondary cycle would be a minimum of 3,000 hours.

Classes for required subjects would meet three to five times per week, with the first type earning one-half a "study unit" (Carnegie unit) and the latter, one full unit. Each academic semester would consist of 15 weeks, with an additional week for examinations.

Successful completion of 40 units of study would be sufficient for high school graduation, provided that these units were distributed as follows:

Required subjects	23 units
Specializations	8 units
Complementary subjects	3 units
Electives	6 units
Total	40 units

It was further suggested that the 23 units of required subjects should include four units each of Arabic language, English language and physical education; two units each of Islamic religion, mathematics,

science, commerce and industrial course work.

The introduction of the credit system in Kuwait is clearly part of a nation-wide, planned curriculum innovation of larger proportions. Though the Kuwaiti model parallels the comprehensive school systems of Sweden and the United States, it has distinctive features. Two of these are the emphasis throughout on religious education and a new subject called "library and research," which combine to create a four-year 40 credit requirement as opposed, for example, to the 36 credit commitment of U.S. secondary school students. The next few years should be an interesting period in the educational development of Kuwait, as the new experimental school begins to have impact on a sample of the nation's youth and the nation's educators, parents, and employees as well.

THE CASE OF QATAR

The era of modern, free education in Qatar barely spans twenty years, though the state has been a center of culture and trade for many generations as a result of its peninsular character and strategic access to the Arabian Gulf. The magnitude and pace of educational development has been phenomenal; the network of schools now established includes all academic levels from pre-school through university. Large numbers of Qatari men have been encouraged to continue their education in graduate studies abroad. Girls' education in regular academic subjects is on a par with boys' education up to and including the university years.

Although the traditional split between science and literature branches has been maintained up to now, there have nevertheless been many curricular changes over the past few years.

Now math education, already implemented in preparatory and secondary stages, is scheduled for introduction at the primary level. A new

"communicative" approach in English language instruction was generalized in 1978-79 after a trial year in selected schools. Arabic language and religious studies have been partially revised, and a new French language sequence has been added in the secondary schools. Closed circuit educational TV was introduced on a trial basis in 1976-77, and a joint committee from the Ministries of Education and Information was formed to study the possibilities for using existing broadcast facilities for educational programming.

A content reform effort is now underway in social studies education. This reform is following a pattern very similar to that already established by an earlier science education project. The science curriculum design project is of special interest, because it has taken account of the unique environment of Qatar and of the scientific principles of most interest to Qatar's inhabitants. It is also a comprehensive reform, designed to be integrative both horizontally and vertically over the whole span of grades 1 through 12.

Development of a New Science Curriculum

In October, 1974, the Department of Curriculum in the Ministry of Education called a meeting to discuss the development of a modern science curriculum in Qatar's schools. Those present included the Director of Technical Affairs, the Dean of the College of Education (now President of Qatar University), chief science inspectors, general school inspectors, and two UNESCO consultants -- one of whom was a specialist in science education.

A primary outcome of the meeting was that Qatar agreed to employ a science education expert to take a leading role in the curriculum development project. The conferees agreed also that a holistic approach would

be taken, integrating developmental aspects such as teacher training and textbook and media preparation. The Ministry agreed to fund the project and to provide personnel for a two-year planning period.

A compelling motive for content reform was the recognition that science education was not a preferred area of study for most elementary school students, and that even secondary school science subjects tended to be avoided by a great majority. Since student interests lay in directions completely opposite to the goals of scientific and technological development of Qatar, something obviously would have to be done to reverse the trend. The science expert's first study sought to analyze not only the trend itself, but also the reasons behind it. The following causes were cited: (1) badly designed curriculum, (2) topics unrelated to Qatari children and their environment, (3) subjects poorly taught, (4) other inadequacies of teaching staff in the classroom environment, and (5) lack of adequate science education facilities in the schools. Subsequent research included structured interviews with primary school teachers and directors as well as with a sample of Qatari parents representing a variety of professions.

Statistical analysis of the responses to the structured interviews showed the respondents were in agreement that a coherent philosophy of science education was missing, and that goals and objectives were not to be found in standard curriculum materials. Texts were aesthetically sterile, repetitive from grade to grade, and each topical unit was self-contained and apparently unrelated to other units. Subjects as important to Qatari youth as the desalination or importation of their drinking water were wholly ignored.

The projected time frame for science curriculum renewal for grades

one through twelve was nine years, i.e., three for each stage of schooling. The plan was to spend the first year developing curriculum grades one through three, which would be applied in schools during the second year of the project. Also during the second year, curriculum for the remaining grades in primary education would be prepared for application in the third project year. During third year implementation, planning would proceed for science education at the preparatory level, and so on until all pre-university science education would have been completely revised.

A subsequent study sought to analyze Qatar's social, economic, manpower and technological goals over the next decade. To these two studies were added the understanding of stages of cognitive development, derived from Piaget. Following these data gathering activities, goals and objectives for the elementary science program were developed. The major assumption which guided the change process was that the local environment must be the legitimate focus of primary school science education. This assumption led to the identification of six component categories of environmental studies: (1) the study of human beings, (2) plants, their growth and usefulness, (3) animals and animal husbandry, (4) matter, (5) energy, and (6) physical phenomena.

Objectives were specified in three categories: objectives related to students' skill development, objectives related to environmental awareness, and objectives related to spiritual awareness of the created universe. Philosophically, there was an attempt to steer a moderate course between teacher-centered and child-centered approaches. In the first category, these skills were addressed:

1. environmental observation skills;
2. ability to analyze relationships among observational data and to form general conclusions as a result;
3. skill in equipment manipulation and simple investigations; safe use and care of laboratory and environmental materials;
4. skill in use of the scientific method for solving problems designed to be of interest to and within the cognitive development of the specific age levels;
5. exercise of curiosity and development of the exploratory, self-initiated discovery attitude;
6. ability to associate science with productive and interesting leisure time activities or hobbies; and
7. thorough grasp of the concepts presented.

Objectives related to the goal of environmental awareness were phrased in the following terms:

1. Helping the children to explore their environment through planned tasks to be carried out in their free time;
2. Training them to collect information about the components and resources of their environment from references, charts, borchures, and discussions with specialists;
3. Developing their environmental consciousness;
4. Helping them to form basic scientific concepts related to their environment and its best utilization;
5. Developing attitudes towards saving their environment against consumption and pollution, through discussing the effects of these acts on their hygiene and standard of life;
6. Helping them to form basic concepts related to their own health, public health and environmental hygiene.
7. Involving them in projects to awaken public consciousness towards the cleanliness of their homes, schools, and the larger environment; and
8. Helping them to appreciate the value of individual efforts and group efforts in solving environmental problems.

Objectives specified concerning the linkage of science and religion are addressed to the development of the child's understanding of the ecological interrelations among all creatures and environmental systems as a planned and marvelous Creation.

The cited objectives were submitted in draft form to a panel of 15 educators, drawn from all levels of the Qatari educational system. They were approved with minor revisions.

Next began the preparation of guidelines for the writing of texts, actual writing of the texts and manuals, preparation of media materials, training of teachers to use the new curriculum, and introduction of the new concepts, materials and procedures experimentally in all primary schools in the State.

The last steps in the process in Qatar to date have been (1) evaluation of the completed implementation and (2) completion of planning and text writing for the preparatory level of science education.

At the beginning of the academic year 1979-80, work was underway on secondary school texts and laboratory procedures.

THE CASE OF SAUDI ARABIA

In 1975, the Directorate for Research and Curriculum was established within the Ministry of Education of Saudi Arabia. It has exercised jurisdiction over content reform matters in two ways: (1) by contracting with universities for curriculum planning services -- notably, with the American University at Beirut -- and (2) by creating clusters or "nuclei" of subject matters and subject matter specialists, which have the goal of studying integration and revision of the subject areas in which they have expertise.

Under the new system, with curriculum change and development specified as a continuous responsibility of the permanent Directorate, reform efforts have a better chance of success. They will be monitored by the same administrative unit from beginning to end, from conception to implementation and generalization. Large scale innovations are made possible for the first time.

Increasingly, the Ministry of Education and the separate Directorate for Girls' Education have demanded the specification of objectives, the description of methods of teaching and of learning environments, and a statement of the means of evaluation of students in all new curriculum proposals. The rigidity of the national examination system still hampers new content development efforts, but the Ministry is aware of the problem and has sought to initiate major changes in evaluation practices during 1979-80.

Two major education content reforms have been undertaken in Saudi Arabia since 1977. The first was a project for curriculum development in science and mathematics for elementary and junior high school students. This was a contract "package" assigned to develcpers at the University of Beirut and is noteworthy for its emphasis on active student learning, and for its precise statements of terminal behaviors expected of students and how to evaluate these behaviors.

Saudi Arabia has initiated a second, remarkable reform indigenously, mounting a massive attack on illiteracy among Saudi women.

In order to appreciate the tremendous strides which Saudi Arabia is making in the field of girls' and women's education, it is necessary to realize how brief a time has elapsed from the opening of the first girls' school, a facility for orphans, in 1956. The first government schools for girls at any level opened in the academic year 1959-60, and the Directorate for Girls' Education opened a teacher's training college in Riyadh ten years later, as graduating high school students created the demand for it. Currently, there are plans for one or two-year extensions beyond secondary education in the fields of accounting, arts and crafts, administration, child psychology, and secretarial studies.

Women were first admitted to the universities in 1969, but they depended on closed circuit television for lectures, doing their studying at home. Separate but equal facilities are presently being constructed or arranged at a rapid pace.

These measures are quite naturally improving the general educational level of Saudi Arabia's younger women. But because of the high priority which has traditionally been given to the education of boys, older women are now especially over-represented among the illiterate. In 1972, a royal mandate (Law No. 523) was issued to require adult women's literacy education, and five schools opened with an enrollment totaling 1,400. The Directorate for Girls' Education is charged with development of the learning programs for these adult women.

Until 1977, the curriculum for literacy education for adult women was the same as for men. However, on the basis of reports from teachers and inspectors working in the field, an administrative decision was made to make several important changes which would strengthen the women's program.

Several criteria and procedures were established which the new literacy curriculum was designed to adhere to, as follows: (1) the content should be selected on the basis of its potential appeal to adult women -- e.g., readings on child-rearing practices, or on physical health, or on religious and educational issues of various kinds, (2) the emphasis should be on application of the content to real life problem-solving, (3) the training should not necessarily be terminal, but should lead to intermediate or secondary school certification for those interested in continuing their studies on a part-time basis, (4) financial incentives should be offered for enrollment and completion,, (5) the teachers specializing in literacy training should receive a raise of 50 percent, and

(6) the textbook to be prepared must be simple enough to comprehend but also presented in an interesting fashion.

The classes began in 1978 and are taught in the early evenings, from four to seven p.m. The duration of the program is four years. It has two levels and it culminates in literacy certificates or, for some, elementary education certification. In a cooperative effort mounted with the help of the Ministry of Information, educational programs meant to reinforce basic academic information are made available by means of radio and television broadcasts. The mass media has also been enlisted in the effort to encourage adults to enroll. Even private schools are required to conduct literacy training. The penalty for not complying is loss of government financial assistance.

The new and separate curriculum for women's literacy education is in part based on the assumption that the lesser exposure of women illiterates to the world outside their homes has placed them in a very different state of mental maturity than that exemplified by male illiterates, and that as a result, it makes sense to begin at different points and cater to different interests in the course of the training.

In general, teachers are directed to distribute the curriculum content carefully over the school years and the two levels, and to build the students' confidence that they can achieve the goals of the program. The teachers are to serve as real-life examples of women's achievement and of women's abilities to learn from mistakes and overcome fear of new situations. Care must be taken not to produce an information overload, and the climate of the classroom should be open and inviting of discussion. The contributions of these adult women must be respected, and their new learnings must be based on what they already know. The ultimate goal is that those who complete the program will have learned

the process of logical thinking and of making sound judgments accordingly.

Figure 2 shows the numbers of students, teachers, and teaching facilities involved in women's literacy and adult education in 1974-75 (dotted areas), along with projections of what is to be achieved by 1979-89. The lower half of the figure shows literacy training for men in the same time periods. Different scales have been utilized for space reasons, and this distorts somewhat the intended graphic comparison. Nevertheless, it can be seen readily that the rate of growth for men's literacy training is much lower than that for women. The most obvious reason for this is the compensatory effort being made to overcome the lag which women's education has suffered in the past. Another reason for the difference in rate of growth may be that men's literacy training is often associated with vocational training and is conducted under the auspices of the Department of General Culture in the Ministry but also under the direction of the Ministry of Agriculture and the Ministry of Labor and Social Affairs. Community Development Centers offer three-month summer courses in literacy and manual arts for men in villages and remote areas of Saudi Arabia.

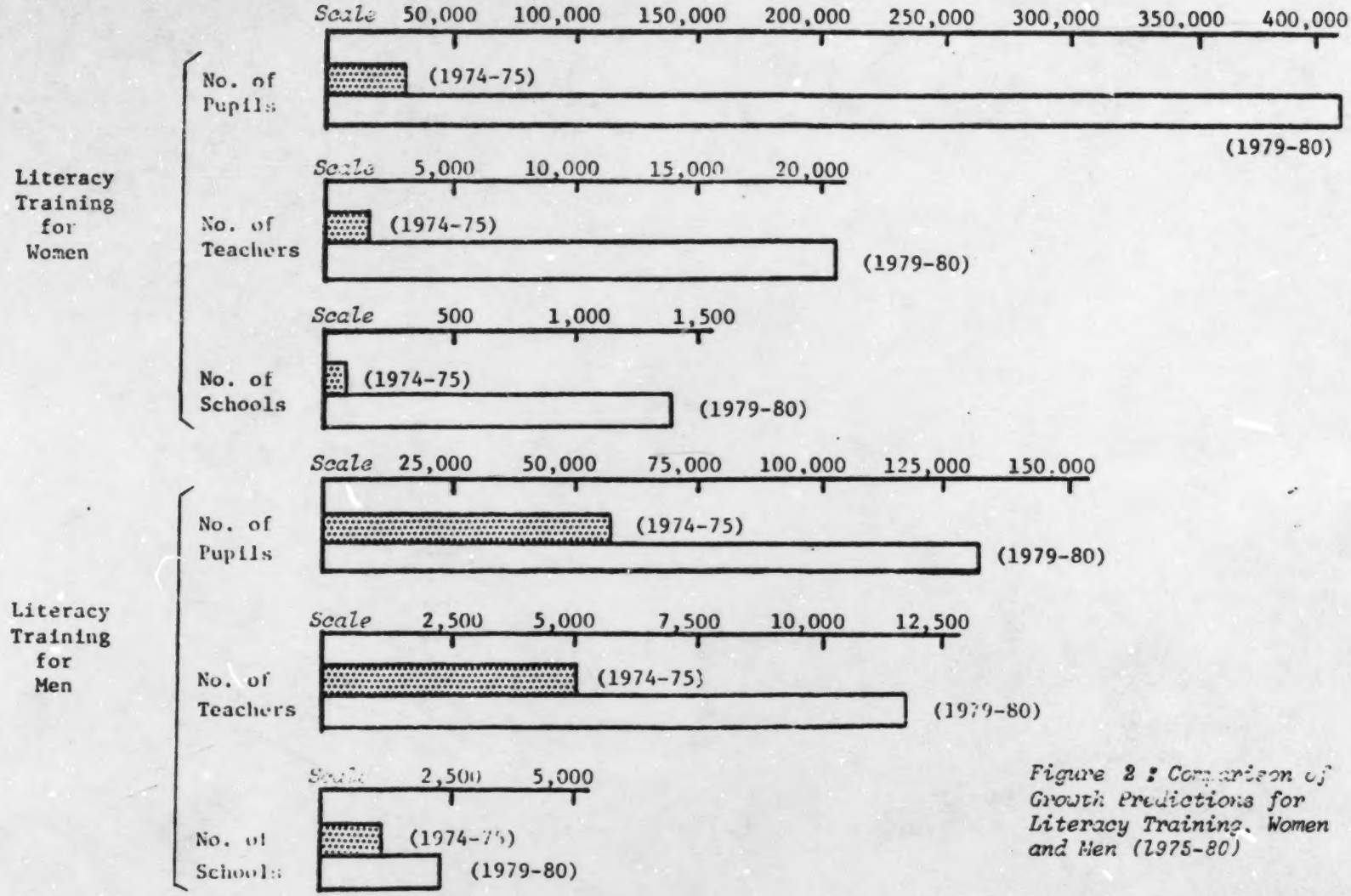


Figure 2 : Comparison of Growth Predictions for Literacy Training, Women and Men (1975-80)

(Source: The Role of Education in National Development, Ministry of Education, Second Five-Year Plan)

THE CASE OF TUNISIA

Because it depends on governmental funding and direction, Tunisia's educational policy-making and initiation of innovation is largely centralized. There appears, however, to be a strong trend toward involvement of representatives of non-educational institutions (such as industrial leaders and other concerned citizens' groups) in the educational planning process. Within the last five years, there has also been a conscious effort to develop decentralized local educational administration units which include the schools themselves and regional authorities for teaching supervision. Many of these changes are aimed at increasing school enrollments, giving local communities more control over financing and use of funds, and promoting coordination of innovation and administration throughout the country both vertically, to and from the central agencies and from one educational level to another, and horizontally, across school systems at a given level.

For the first time, vocational and technical education has emerged as a vital constituent and has taken a prominent place in the educational structure.

Organization of Tunisian Schools to Accomodate Manual Training, Vocational and Industrial Arts Education

Elementary education, free but not yet compulsory, has a history of high rates of failure on national examinations for entrance to preparatory or junior high school education. In June, 1975 the percentage of students completing the examination successfully was only 26.3. The discouraging kind of statistic has influenced the belief that elementary education does not yet meet the needs of the vast majority of the population, and

massive efforts to change the educational focus at this level seem necessary. Re-thinking the mission of elementary education has led to the new emphasis on integration of manual skills and basic academic work, to the proposed extension of elementary grades, to alternative post-elementary school tracks, and to the provision of three separate opportunities to take the entrance examinations for general secondary education.

General education at the secondary level is called "long term high school education." It continues for six or seven years and culminates in either a technical (six year) or a baccalaureate (seven year) diploma. The Ministry has noted that, from 1974-75 to the present, student enrollments have been increasing in technical education and decreasing in the humanities track. In the one year period from 1975-76 to 1976-77 alone, technical student enrollments have risen from 12.5 to 17 percent, and enrollments in humanities-oriented course work have dropped from 26.2 to 12.1 percent of first level (junior high) graduates.

One of the most significant supports for content reform and development is *structural* change within the schools themselves. Change agents have typically discovered that altering content and school texts is insufficient to produce genuine improvement in learning environments and outcomes. Structural change not only demands new and improved physical environments but also suggests a reconsideration of such matters as scheduling practices and length of school day. Failure to attend to these contextual elements has spelled defeat for many innovations which were positively received and otherwise feasible.

Tunisia's educational planners seem to have taken proper notice of these dimensions. In 1976 a study was conducted concerning the numbers of hours of teaching which were being devoted to specific studies, at

all school levels. As a result, several new mandates were issued to realign school hours in accordance with new educational priorities and to standardize these hours from school to school. More recently, there has been intensive study of the role of media in instruction and the structural changes which are necessary to make best use of media resources and equipment.

At the elementary level, five hours of study per week have been added for first graders, so that they are now in school for a total of 20 hours per week. The additional hours are used to develop basic skills intensively, as in oral and written language practice and mathematics. Two hours per week have been added to the total number of hours in school for fifth and sixth graders, to allow time for applied studies in agriculture and industry.

Another aspect of structural change in bi-lingual or multi-lingual nations is the consideration of language of instruction. Available reading resources are not always in the preferred language or languages. Tunisia has addressed the issue of language of instruction by encouraging the use of local dialects in classrooms during the first three elementary years. These years, then, are to serve as a bridge between the language of home environments with which students are most familiar and the language or languages of formal education.

School hours are grouped in five subject areas: Religion and Citizenship, Practical Problem-Solving, Language Study, Aesthetic and Practical Education, and Physical Education. Practical education varies from school to school, depending on whatever farm plots or workshops are available, and begins in the fifth grade.

Great emphasis has been placed on elementary education in Tunisia

because it is very often the end of formal education for many students. At the same time, content reformers have been restructuring the school systems to provide greater access to higher levels of education. A part of this restructuring has been the experimental introduction of a two-year extension of elementary education, begun in 1977. Its short term objectives are to continue the years of basic education, to reduce drop-out and eliminate the phenomenon of repeating sixth grade in order to be able to re-test on the national secondary entrance examinations, and to provide further years in which to develop vocational skills.

A major long range objective is to open the door for further adjustment and readjustment of basic education, as needs appear and after longitudinal study of the results of these first changes.

Complementary long range goals are to relate the schools more successfully to local and national environments, to restore to the people an awareness of the importance and dignity of manual occupations, and to encourage juvenile maturation within school settings.

Implementing the new design began in September, 1977, with the addition of the seventh grade to the regular population in the selected experimental school. The curricular program in the seventh year has these major objectives: (1) to provide additional preparation for passing the secondary entrance exams and to acquaint students with the new dimensions and opportunities of secondary education, and (2) to add to the students' manual and vocational skill repertoires. The curriculum planners have recognized several potential constraints. Seventh grades cannot be added in schools where an insufficient number of students are available to make a full class. Further, there need to be facilities and staff available to handle the extra class or classes. Of particular

concern here is the accessibility of fertile school farms and equipped school workshops. Another consideration is the availability within transporting distance of industrial and agricultural businesses capable of absorbing the students for an eighth year of training upon completion of the seventh grade. It is recognized also that planners must seek to overcome parental resistance or reservations, as well as to enlist the cooperation of local educators and businessmen. As a totally new idea in Tunisian education, the additive elementary years need public support and understanding if they are to prove successful and useful to the society.

It was decided that even if two of the first set of constraints were operating, nevertheless the project should proceed. As an intermediate step, seventh graders would at least be recognized as a separate class, rather than a group of repeaters mixed in with the regular sixth graders. They would be provided with a classroom of their own so that program, i.e., school curriculum, could be differentiated to meet their needs. Students who dropped out of the seventh year could still be directed toward one of the pre-apprenticeship programs.

At the outset, the eighth additive year was conceptualized as a regional, out-of-school experience. Because of the total focus on vocational skill development in this year, planners understood that heavier constraints would be operating. Schools initiating the eighth year would have to be prepared to supervise the out-of-school training experience, local industrial and agricultural operations would need to accept student trainees by agreement with the schools, and in-school shops would need to be developed wherever possible to supplement the out-of-school job experience.

The Ministry has already had some experience with what is called "post-apprenticeship" training. In a cooperative effort mounted with the aid

of the Ministry of Agriculture and several provincial governments, a few work projects were set up in 1975, involving about 170 student trainees. These projects utilized local resources and called upon the schools for staffing and facilities. Some provincial departments provided interships within their own operations. By 1976-77, a total of eleven centers were operational, with a total of 270 students. Outcomes of these experimental programs are viewed as positive, and projected expansions include fishing industries and girls' hand crafts as well as additional technical and agricultural skill training centers.

In long-range planning for the eighth additive year, however, the basic education curriculum design is to move the learners into the school setting. The first schools which will add the eighth year facilities will of course be those which have already successfully implemented the seventh year program.

The threefold opportunity to qualify for secondary school admission is a special feature of the elementary extension. Students may take the examinations at the end of the sixth, seventh, and eighth years according to the provisions of the current plan. If the exams are successfully completed when the student in 12-24 years old, he may proceed directly to general secondary education. If he is 15 to 16 years old before he completes the elementary and additive years successfully, he is guided toward vocational education. As noted before, the secondary vocational student is not excluded from higher education if he completes the regular vocational sequence plus a fourth post-secondary year (See Figure 3).

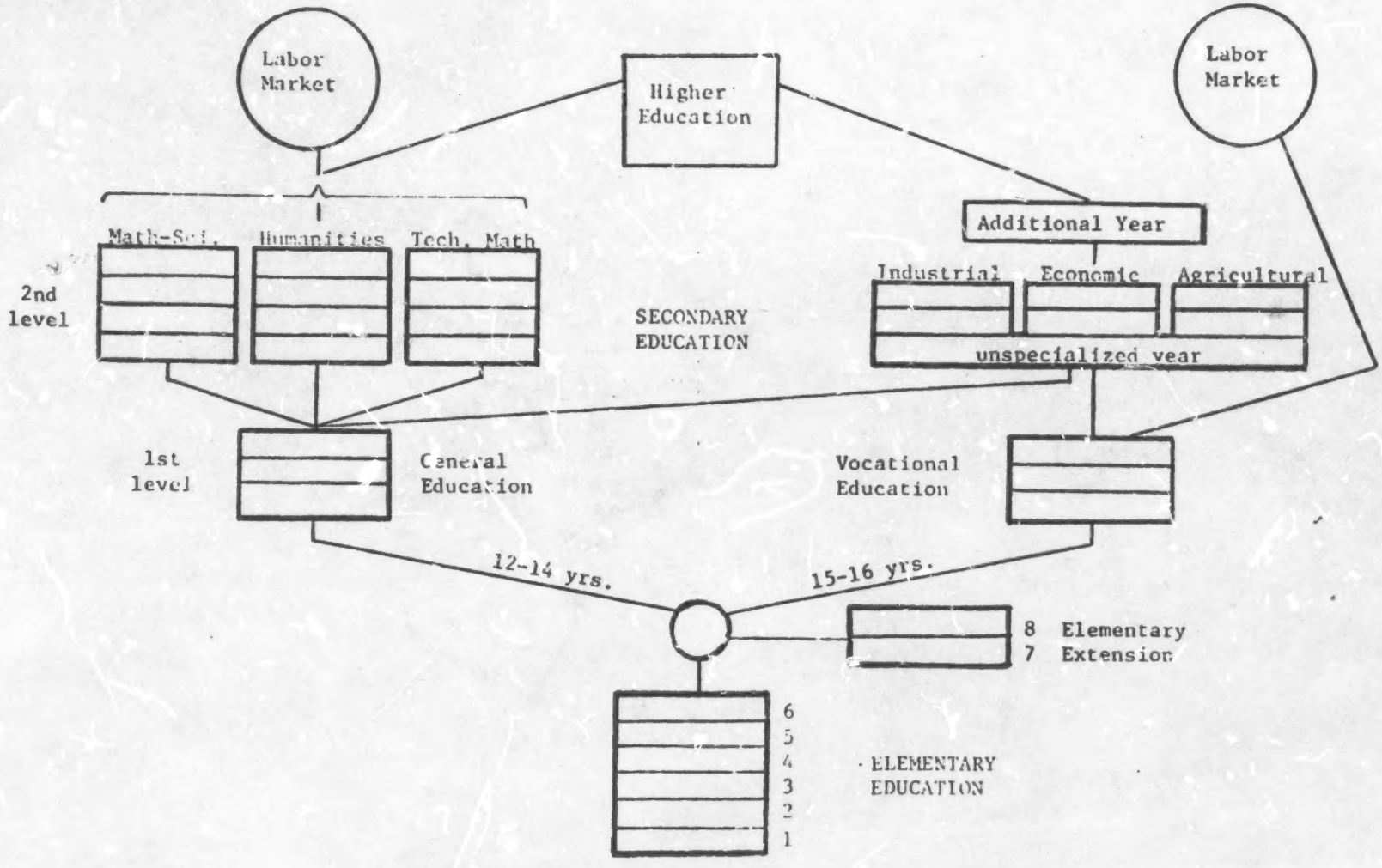


Figure 3: Educational Ladders in Tunisia

Source: "Memorandum on the Situation of Vocational and Technical Education, Republic of Tunisia, Ministry of Education, Tunis, n.d., p.5 (and interviews).

Chapter 4

PLANNING FOR THE FUTURE

What should be perfectly obvious from the fore going chapters is that every country in the world has special circumstances which influence educational decision-making and progress. What may also begin to be evident is that the *processes* of problem resolution in the reform of education content have much in common *when they are successful*. It is these components of successful educational change that deserve a closer look.

These seem to be the critical elements:

1. A genuine desire for education reform, in all sectors of the society;
2. Agreement that change processes must be gradual and democratic, if they are to be widely accepted;
3. Courageous problem identification;
4. Commitment to the theory and practice of comprehensive, thorough action planning, with in-depth, fact-finding research preceding all critical steps;
5. Representation and participation of all groups in the society which will be affected by educational change, from the beginning to the end of change projects;
6. Use of search techniques and comparative studies to define and assess all feasible alternatives;
7. Political facilitation of implementation of a selected model or plan;
8. Trial implementation, using trained personnel who are thoroughly

familiar with the plans, the reasons behind them, and the outcomes hoped for;

9. Continuous evaluation of all parts of the change process, including re-evaluation of plans and alternatives;
10. Revision and readjustment according to research and feedback data OR starting over if necessary;
11. Generalization and consolidation of progress made, with provisions made for future change as needed.

To developing countries, these change processes may seem burdensome -- costly in time, in energy, and in money. They are absolutely right. Educational change is a costly, confusing, and often frustrating process. But the alternative is worse: archaic school systems which have little relevance to the 20th century (and none to the 21st), which leave children intellectually handicapped and culturally isolated, and which cripple planned social and economic development processes instead of supporting them.

In Chapter 1, nine vital action-principles or objectives were cited (pp. 7-9). Taking these as criteria for evaluating overall educational progress in all of the countries for which case studies were written, it becomes very clear that not even the developed countries have perfectly achieved all nine. Developing countries, though making tremendous strides, have even farther to travel along this road of educational reform and development.

In the check list below, each principle of criterion is stated in shortened form, and columns have been provided to indicate various degrees of progress. Readers may find it useful to think about current reform efforts in their own countries, to make judgements about them and to rate progress in each dimension.

Figure 4: Evaluation Checklist

	MEASURES OR DEGREES OF PROGRESS			
	No Progress	Very Little	Moderate	Very Great
1. Development of educational standards				
2. Development of schools as active communities				
3. Improved preparation of teachers				
4. Equality between girls & boys, men & women				
5. Taking account of individual learning needs				
6. Development of full student potential through appropriate guidance and assessment				
7. Achieving balance between general & vocational education				
8. Providing "recurrent" or life-long education				
9. Students are vocationally prepared, get jobs, and can easily secure more education & training if they wish				

Realistically, it must be supposed that, while all nine principles are embedded in the educational goals of every country surveyed, some will seem more critical than others during different stages of development. But though differences in priorities at different points in time are to be expected, they should never become an excuse for neglecting any of the stated principles or criteria.

The Relationship of Critical Components of Change to the Achievement of Universal Action-Principles in Education

One of the pervasive problems in education content reform is the translation of ideal goals into action. Sometimes what is involved is a "Gestalt-switch", a phenomenon known to artists, psychologists, and perception theorists as changing "figure into ground", or "ground into figure" -- whichever is the reverse of a picture as normally perceived. It is possible to perform such a Gestalt switch in relation to the nine items in the checklist above. They have been variously called "objectives", "dimensions", "criteria", "priorities", and "principles." From one point of view, the words may make no difference, as all nine items are widely accepted, universal goals of education.

But it may be remembered that these items were originally called *action-principles,* and this designation forces one to view them no longer as admirable goals and ideals, but as principles about which something must be *done*. In other words, the Gestalt switch is from vision and rhetoric to ways and means and accomplishment.

Many Arab officials and educators have made this switch already and others are sure to follow. This does not mean that the ideals have been sacrificed, but rather that they have become the very ground from which all "figures", all actions spring. Practically speaking, beliefs begin to become realities, and dreams begin to come true. Science and technology become the handmaidens of vision and idealism, instead of seeming to be opposing forces.

The eleven critical components of change noted in the first part of this chapter have all been identified and tested scientifically. Not only do they appear over an over in the research literature of the sciences and

social sciences, but also in the everyday experiences of education content reformers. If something goes wrong with the change process, it is most probably that one of these critical components has been forgotten. It would be foolish to claim that careful attention to each component will absolutely guarantee success of an educational venture, but it would be equally foolish not to take each into consideration when it is a known contributor to success.

Using the Critical Components of Educational Reform Scientifically

Throughout the ages, scientists have turned logical, rational thinking upon the problems of mankind. But they have also been intuitive, and humanistic, and even spiritual. Today, they are often convinced that all knowledge is interconnected, and that common principles apply across all kinds of human, conceptual, and physical systems. Consequently, the best of today's scientists -- and the best applications of science in education -- are interdisciplinary.

The eleven components of reform have been derived from many disciplines and are used on behalf of every discipline. The components are dynamic, interactive, and can hardly be taken one by one or step by step. For example, political facilitaion of change may come even before a genuine desire for change has developed among the people, or the people may ask for change before political leaders are willing to grant it. Comparative studies of education may be done before there is general agreement on gradual and democratic change, etc. The point is that while some components appear to be sequential, and are treated so, they must be scientifically conceived of in a more dynamic way. The process of change seems almost never to proceed in a straight line, from one planned action to the next. The best mental preparation for imagining change, then, is to conceive of

end goals, and of many paths and by-paths and cycles and re-cycles by which these may be reached.

General guidelines can nevertheless be proposed. Once education content reform is recognized as a social as well as a scientific process, many aspects of change become predictable. In fact, the making and carrying out of innovations in social, political, economic, and educational institutions has become a well-defined applied science and profession in some developed countries. Such scientist-professionals are called "change agents," and their role is to take the critical components which are stated here, and to apply them to education or to other kinds of institutions facing many kinds of development problems.

Whether in education or in any other endeavor, the change agent must be thoroughly familiar with the general features of all systems (e.g., all organizations have both formal and informal power structures; a sense of personal worth and job satisfaction is a more powerful motivator than money; workers resist following rules, unless they have also helped make them; etc.). Next, he must develop a working knowledge of the existing system which he is asked to change. Third, he must be knowledgeable about changes which have occurred elsewhere, from which he and others may learn. Last -- but far from least -- he must understand the psychological needs of the individuals he is to work with, and must respect them and their contributions openly and with sincerity.

The change agent, whether he is a Ministry official or a curriculum specialist or a school teacher, must be willing to work hard, and to elicit hard work from others. He must, however, be realistic in his expectations of himself and others -- remembering that educational change is a social process and that all social processes take time. There is no longer any doubt about it; if education content is to change, then educators,

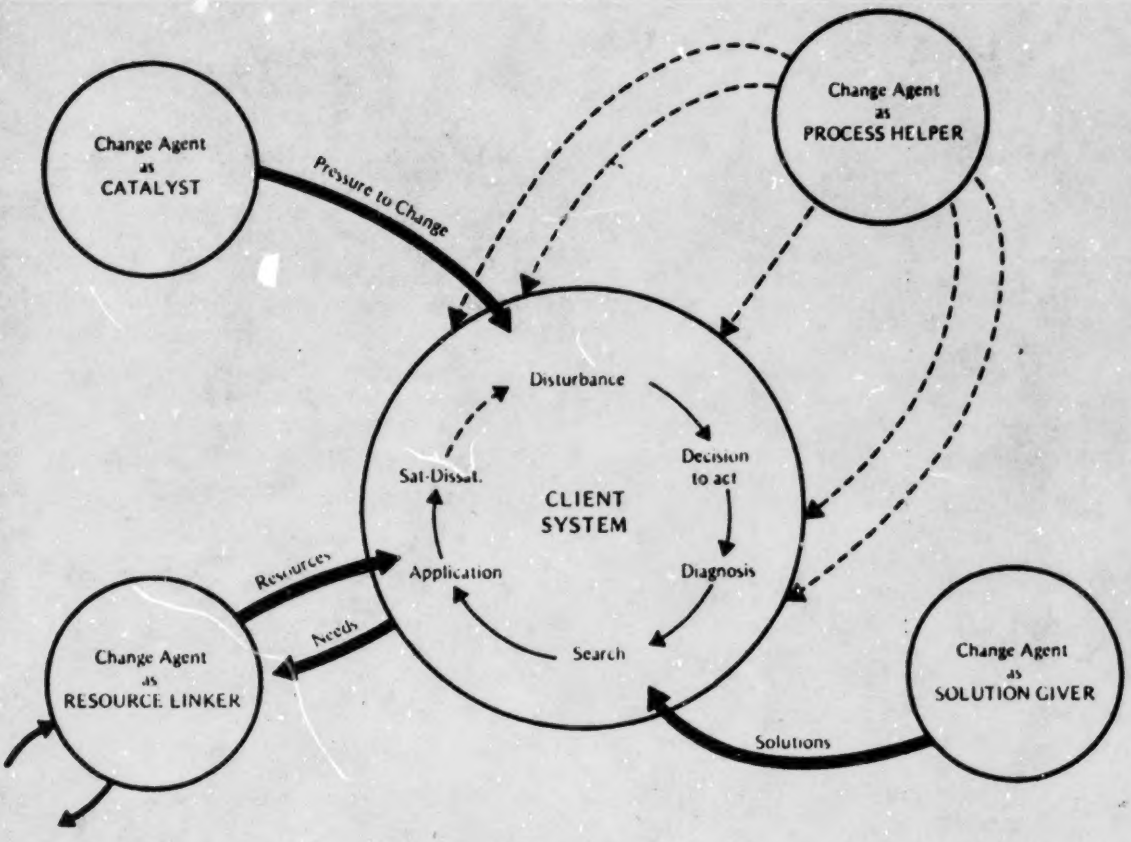
educational planners, and everyone else affected by education must change, too. That is why it is so essential that all these groups participate in every stage of the reform movement.

Most people are reluctant to change, even when they sense that something is wrong. It usually takes a disturbance of some magnitude to create a climate in which change can occur. In (Figure 5), Ronald Havelock has shown how "disturbance" leads to the decision to do something about the disturbance, and how that decision leads to diagnosis, to a search for solutions, and to applications which are either satisfying (sat.) or dissatisfying (dissat.) Havelock also demonstrates graphically that a change agent performs four interactive roles for a client system. The "client system" may be an individual, a single school, a school district, region, or an entire national educational system.

The change agent may create a "disturbance" which makes people think about the need to change or he may come into a situation where disturbance is already felt. He is <u>always</u> a person who helps others work through the process of change; he is <u>always</u> a person who can help to propose solutions' and he is <u>always</u> someone who can help find needed resources -- material or human. He does not necessarily perform all of these roles simultaneously.

The change agent may be an "insider" or an "outsider" to the system with which he is working. An outsider usually has the advantage of wider experience and a more objective point of view, but an insider may have the advantage of being already known and trusted by the client system. It is often not really necessary to decide which change agent will be more effective, the insider or the outsider. Both can be used, as long as they agree in principle upon the changes to be made.

Figure 5: Four Ways To Be a Change Agent



After Ronald G. Havelock. The Change Agent's Guide to Innovation in Education. Englewood Cliffs, N.J.: Educational Technology Publications, 1973.

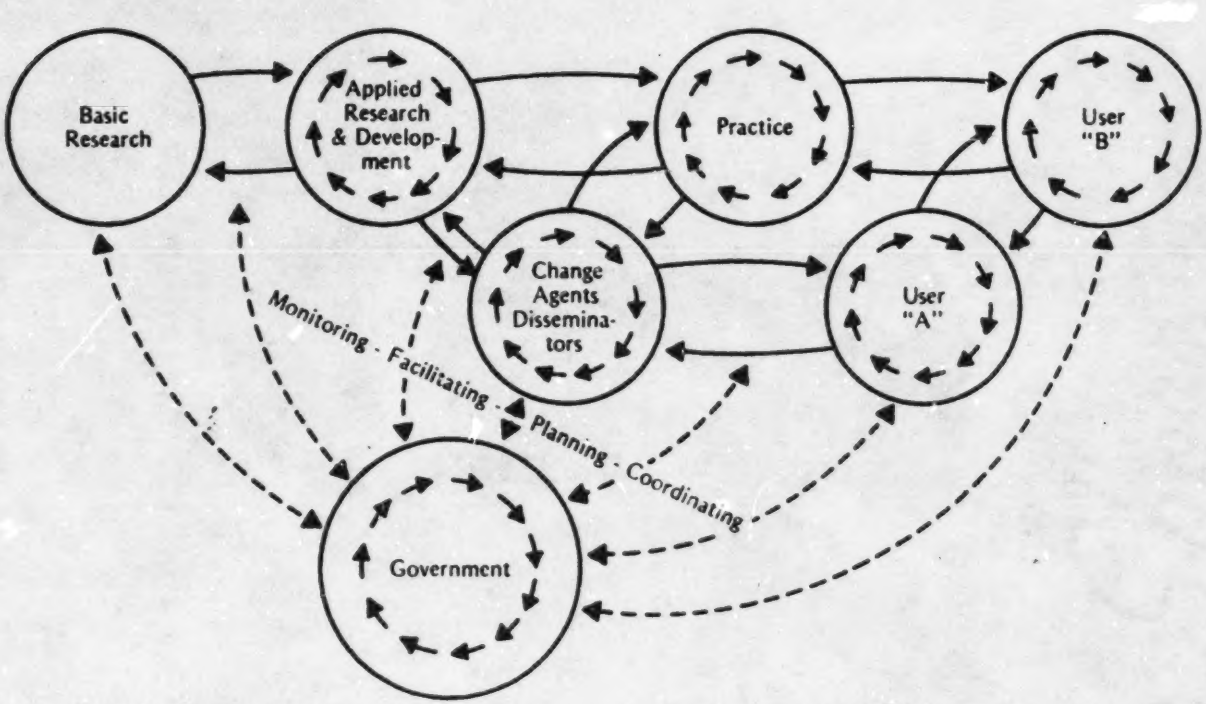
Figure 6 is , basically, Havelock's version of subsystems and information linkages which have to be maintained within a general or "macro" system which is involved in educational reform. Here, for the first time, the dynamic nature of the components of change may be seen.

The desire for reform may be generated by any part in the system (where "User" or "client" systems may be ministries, schools, industries, or even the students themselves). Recognizing the number of parts or subsystems affected opens the door to understanding that change will be slow and that all parts should have some input into decision-making. Any part of the system may be the location of a problem, or may even be causing problems. Courageous people are needed to identify the problems, particularly when the problems are to be found in their own subsystem.

Basic and applied research and development must be available, if comprehensive planning and evaluation of education content reform is to be carried out. Change agents must be hired from outside or trained from within the system, and it should be borne in mind that a combination of both types of change agent is helpful. These agents are at the very center of activity, receiving inputs either directly or indirectly from all other subsystems. (An arrow has been added to Havelock's diagram to show what is believed to be avery significant input from applied research and development directly to the change agent.)

The government, as a primary subsystem of the total system, facilitates the reform process largely through indirect means (dotted lines) even in centralized educational systems. The most direct linkage is with the change agent, who plans and coordinates with government officials and who shares their concern that all change processes should be carefully monitored and evaluated.

Figure 6 : The Macrosystem of Knowledge Linkage



All sub-systems of the society must be able to simulate each other's problem-solving process and exchange messages concerning needs, problems, and solutions; but the efforts of all need to be monitored and, where necessary, coordinated and facilitated by a government which has an evolving concept of what the total dissemination and utilization system should become. This concept of a "total system" must be clearly oriented toward a definition of "the public interest" which safeguards, as much as possible, the special interests of the sub-systems involved.

After Havelock; 1973.

It should be noted that the typical educational consultant to developing countries may or may not be trained as a change agent. If he is a content specialist only, he may not have a very good grasp of what is involved in the social process side of change. Bearing in mind the resource linkage role of the change agent, it makes most sense to employ a person -- male or female -- who is knowledgeable about the social process, for he or she will make the necessary linkages to content experts as they are needed.

Formative and Summative Evaluation

One of the tools which the change agent (as educational technologist) uses most effectively is evaluation. He applies formative and summative evaluation techniques not only to the analysis of student achievement but also to the education content reform process itself.

The sole purpose of formative evaluation is to provide data for revision: of content, of curriculum designs and texts, of teaching strategies, of scheduling, and of every other aspect and process of schooling. The use of formative evaluation grows out of the conviction that creative changes can be made only if it is known more certainly which changes are needed, in what amount, and in what sequence. Experimental evidence shows that testing of prototype plans and strategies and subsequent revisions of those materials and methods on the basis of feedback from students, teachers and administrators does result in more usable and effective curricular and other changes. In exactly the same fashion, frequent feed-

back from students, through testing or observational means, provides teachers and content reformers with information needed in order to improve the teaching learning process.

Presently, most educational evaluation is summative in nature, related to students' final test scores. Summative evaluation is very seldom applied to content reform, school systems, or to ministries in charge of school systems. This is not entirely a matter of unwillingness to engage in self-study and criticism, but a lack of knowledge of adequate summative evaluation techniques. As "process-helper", a good change agent can assist in the development of such techniques.

The change agent, unlike the subject matter expert so often employed in developing countries, is also a financial planner. He may not choose to work specifically in terms of dollars or riyals or dinars or dirhams, but he can help to develop lists of requirements for specific-change programs, lists which can be cost-estimated by accountants and other financial officers. These estimates of program costs can then be compared with costs of alternative programs, and decisions can be more sensibly made about the relative merits of each program and the costs attached to each.

The Change Agent and The Future of Arab Education

It has been quite frankly stated here that what is needed at this stage of Arab education content reform is a new kind of "content" specialist: the creative, flexible, dedicated individual who knows the content of scientific, social change processes. He must know -- and be able to communicate the fact -- that learning to use behavioral objectives, or learning new concepts in science, or developing new teacher training programs, or recongizing education reform as a continuous process, do not

in themselves guarantee that reform is occurring, or that attitudes have significantly changed. Though he can contribute to the achievement of all of these training objectives, what he must ultimately accomplish is to make every government and every educational reformer with whom he is associated *identify and question the validity of the assumptions being made about the educational process and the nature of human teachers and learners, and about the quality of change outcomes.*

Change agents are not "born". They are trained. They are educational planners and technologists whose own education and training has taken place in human relations, interpersonal communications, educational technology, and educational management laboratories, as well as in actual work situations. They have social science or business or language or even art backgrounds, but they have -- in every case -- gone beyond these backgounds to take a larger look at the world.

It is this larger look which is sorely needed in the education content reform in Arab and other developing countries. One may ask whether it is possible to find and train such people. Surely it is not only possible but already happening. They may come at first from developed nations, but they will understand that one of their paramount tasks as a change agent is to train people within the "client" country who can carry on the change agent role after they are gone. In some instances educational change agents already exist within a developing country, but have been given little understanding or authority to do their work as they know it should be done.

The next question may be whether it is wise to place so much confidence in one role or one group of content (i.e., social content) specialists. The answer is that *it is precisely because these specialists are trained*

to involve and to listen to all other relevant groups that they are so effective in producing change.

One other comment is necessary. Because the change agent often feels very alone and very vulnerable in the system he has chosen to work with, it is very important for him to be associated with a network of other change agents and to meet with them regularly to share ideas and problems.

It is perhaps rare that a report of this kind and scope can arrive at a culminating focus or recommendation. But as one looks back upon the nine case studies, it is very plain that change agents or groups of change agents -- some perhaps more expert than others -- have been at work in all of the successful projects reported. For the most part, they may not even have thought of themselves as "agents" of change, but rather as min-istry planners, curriculum developers, or consultants. But they have cer-tainly had some of the characteristics which successful change agents must have.

On the basis of these studies, it seems important to give change-agentry (the role and the process) greater attention, and to provide iden-tified change agents with the appreciation, the skills, and the resources they need to accomplish further education content and other reforms.

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—For further references, consult the bibliographies of the above studies.